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**INTEGRATION OF INDIGENOUS KNOWLEDGE IN THE INTERMEDIATE PHASE
SCHOOL CURRICULUM IN A SELECTED EDUCATION DISTRICT IN THE EASTERN
CAPE PROVINCE, SOUTH AFRICA**

by

NKOSINATHI NDUMISO LIZO MKOSI



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UNIVERSITY OF FORT HARE

Supervisors: Professors Symphorosa Rembe & Mzuyanda Percival Mavuso

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DECLARATION

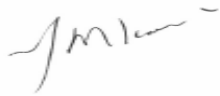
I, Nkosinathi Ndumiso Lizo Mkosi, declare that:

(a) This thesis, *Integration of indigenous knowledge systems in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa*, is my original work;

(b) It has not been submitted for degree purposes at any other University; and,

(c) The information derived from published and unpublished work of others has been acknowledged in the text and a list of references is given.

Researcher's signature:



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ABSTRACT

The aims and principles of the post-apartheid South African school curricula, ranging from the Revised National Curriculum Statement Grades R-9 and the National Curriculum Statement Grades 10-12, to include the Curriculum and Assessment Policy Statements (Grades 1-12), have been aligned with the aims and principles of the South African Constitution. The aims and principles, among others, speak to the establishment of human rights, inclusivity, environmental and social justice, and valuing of indigenous knowledge systems. These are the bedrock of all the subjects and do not necessarily confine themselves to the science subjects only; even though the call of inclusion of indigenous knowledge in the sciences is oversubscribed. There has been concerns raised variously that the integration of indigenous knowledge systems in the curriculum, generally, and in the teaching of the respective subjects, particularly, does not necessarily happen as it should be. Thus, the purpose of this mixed methods approach study that adopted a concurrent triangulation mixed methods design and premised on the postpositivist paradigm investigated the integration of indigenous knowledge in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa.

The guiding lenses adopted for this study were two-fold. The main primary theoretical framework drew from three integration theories: (a) Huang and Newell's (2003) *Knowledge Integration Processes and Dynamics notions*; (b) Beane's (1995) *Curriculum Integration and the Disciplines of Knowledge* and (c) Harden's (2000) *Integration ladder: A Tool for Curriculum Planning and Evaluation*. The 'secondary' lens of analysis, which the researcher named, the 'supplemental framework', was constituted by notions and constructs derived from the indigenous knowledge systems discourses and postcolonial notions and constructs. The study revealed, among other findings, that (i) whilst a majority of teachers claimed to integrate IK in their classrooms, a significant number did not, and those who claimed to be integrating were unsure about how to integrate (ii) the majority of teachers, HoDs and Subject Advisors were either poorly trained or did not receive any training in the integration of IK (iii) the support and monitoring of IK integration was poor

to non-existent. Thus, the study proposes a model, the *Integrative Indigenous Knowledge Integration Support and Monitoring Model (IIKISMM)*, which may act as a framework for the coordination of the support and monitoring of IK integration in the school curriculum.

There are significant recommendations offered by the study to teachers and policy makers with regards the integration of indigenous knowledge systems in the school curriculum. Also offered by the study are possibilities for further research in the integration of indigenous knowledge system in the curriculum.

Key words:

Integration, curriculum, indigenous knowledge, indigenous knowledge systems, Intermediate Phase, Western knowledge.



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How can I not first start by acknowledging the divine hand and presence of the Almighty throughout this arduous intellectual journey; I started the journey with a prayer to Him for guidance, fortitude, resilience, patience, strength, and wisdom. Prayer sustained me throughout when I wanted to falter. As always, He delivered. Glory unto Him.

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I started this study with a prayer, I end it with a prayer of thanks in acknowledgement of the grace of uQamata: "*Ndiya kukubonga, Yehova, ngayo yonke intliziyo yam; Ndiya kuyivakalisa yonke imisebenzi yakho emangalisayo.*" (Psalm 9:1)

DEDICATION

In memory of my sister, Nomfundo Pateka (1957-2002), who had an unwavering belief in my modest abilities and to my parents, my mother, Henrietta Nonkosi Mkosi (Mtwal!) (1928-2013) and father, Taylor Ntshontsho Mkosi (Madiba!) (1926-2015), whose measure for success was to be educated.



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ABREVIATIONS AND/OR ACRONYMS

ANOVA	Analysis of Variance
CAPS	Curriculum Assessment Policy Statements
CES	Chief Education Specialist
CMC	Circuit Management Centre
DBE	Department of Basic Education
DCES	Deputy Chief Education Specialist
DoE	Department of Education
DTI	Department of Trade and Industry
ECDoE	Eastern Cape Provincial Department of Education
FET	Further Education and Training
FGD	Focus Group Discussion
GET	General Education and Training
GTAC	Government Technical Advisory Centre
HoD	Head of Department
IIKISMM	Integrative Indigenous Knowledge Integration Support and Monitoring Model
IK	Indigenous knowledge
IKS	Indigenous Knowledge Systems
IP	Intermediate Phase
MEC	Member of the Executive Council
NCS	National Curriculum Statements
OBE	Outcome-Based Education
PAC	Practical Augmentation Course
PCK	Pedagogic Content Knowledge
QUAL	Qualitative
QUANT	Quantitative
RNCS	Revised National Curriculum Statements



SMS	Short Message Service
SMT	School Management Team
SP	Senior Phase
THP	Traditional Health Practitioner
UNESCO	United Nations Educational, Scientific and Cultural Organisation



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CHAPTER ONE

BACKGROUND/CONTEXT OF THE STUDY

1.0 INTRODUCTION

Research on Indigenous Knowledge (IK) and its benefits and prospects for the curriculum have become more pronounced and have been undertaken globally, in Africa, and also in South Africa since the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and World Intellectual Property Organisation pioneered the role of IKS in 1978 (Zazu, 2008). The recognition of IKS led to countries developing – like post-apartheid South Africa – their own national IKS policy, which in turn led to various government departments developing their own IKS sensitive and accommodative policies. The South African IKS policy that was adopted in November 2004, was a result of an inter-departmental effort aimed at creating a framework for the recognition, understanding, integration and promotion of South Africa's (SA) abundant IK resources. The policy incorporated a wide scope of recommendations concerning IKS, *inter alia*, integration of IK into the national education and research systems (South Africa. Department of Trade and Industry [DTI], 2008). Thus, in this vein, post-apartheid South Africa's new curriculum policy statement's aims and principles strive to realign themselves with those contained in the Constitution of South Africa, that, *inter alia*, puts emphasis on inclusivity, valuing IK, and social justice for all (Mkhwanazi, 2014).

As suggested above, the recognition of IKS resulted in a proliferation of research and other scholarly work on IKS. It is in a similar vein that this study aims to investigate the integration of IKS by teachers in the mainstream South African Intermediate Phase school curriculum. The study purports that while there is recognition by the new South African curriculum that IKS and local knowledge should be integrated into the school curriculum – there appears to be limited integration occurring in authentic classroom situations.

1.1 INDIGENOUS KNOWLEDGE VERSUS WESTERN KNOWLEDGE SYSTEMS/MAINSTREAM KNOWLEDGE

Most authors have similar conceptions of the term *indigenous*. However, as Dei, Hall and Rosenberg (2000) claimed, it is problematic to define IK, and equally difficult to demarcate the parameters for purposes of scrutiny. Mwadime (1999) stated that the term was coined by Michael Warren and Robert Chambers' groups in 1980. Maurial (1999) posited that indigenous "reflect[s] ideological connotations, and, contemporarily, connotes plurality instead of otherness" (p. 64).

George (1999) suggested that the terms indigenous knowledge, and that traditional, lay beliefs and common-sense beliefs, refer to knowledge generated by a people in a particular societal context. Commonly, IK is associated with people in non-Western, non-industrialised, and traditional locales.

George (1999) suggested that IK is distinct from school knowledge, in that it is not produced by following certain prescriptive rules or procedures – but rather is generated by people when attempting to find solutions for day-to-day problematic scenarios. IK is not found in school curricula, except rarely, with the space for knowledge in the curricula being occupied and reserved for academic knowledge. It could reasonably be deduced that the space for knowledge in the curriculum has been preserved for the prominent hegemonic positioning of Western knowledge, at the expense of IK.

The reason for school knowledge/Western knowledge occupying the space for knowledge could be ascribed to the neocolonial legalistic continuation of the economic, cultural, and linguistic power relationships that have controlled politics of knowledge – that is, the generation, production, and distribution of knowledge about the colonised peoples of the non-Western world (Sharp, 2009). One way to counter the hegemony of Western knowledge in the curriculum, and the subjugation of IK, could however be the “hybridisation” of the curriculum – the mixing of the two knowledge systems in a “Third

Space”, which is a contentious and disruptive area that develops when two or more cultures interact and integrate (Bhabha, 1994).

One characteristic that appears to emerge consistently regarding IK, is that it is orally transmitted from preceding generations, which is supposedly not the case with Western scientific knowledge (Castellano, 2000).

Apfell-Maglin (as cited by Prakash, 1999) observed that with IKS, the people and their environment are not separate entities, and IK is holistic and connected to nature. In addition, Mosha (1999) claimed that indigenous peoples experience life holistically and this appears to concur with the previous assertions. IK is "idiographic" – it is a knowledge of substantive content, while Western knowledge is "nomothetic", being constituted by generalised kinds of knowledge (Nagel cited by Parrish, 1999, p. 269). Jegede (1999) indicates that it is thought that Western scientific knowledge promotes rational thought, and the converse is therefore true for IK. Shiva (2000) contended that IK has been defined as being unscientific, because the epistemological foundations of Western knowledge were imposed on IK systems. The reason for the justification of the epistemological foundations of Western knowledge and its imposition on IKS, may be linked to Fanon's view that the indigenous peoples' customs were ridiculed and demeaned; they were pressured to adopt the culture of the West, and their beliefs and values were dismissed as being backward and primitive (Seidman, 2013).

Dei, Hall and Rosenberg (2000) argued that because IK exhibits an attribute (the accumulative nature of knowledge), which is common to knowledge – it can be said to be dynamic like Western knowledge, and possesses moral and cognitive conceptions about the environment and societal structures. Aikenhead (1996) alleged that, similar to IK, Western knowledge cannot be divorced from the day-to-day existence of people.

The current researcher perceives the commonalities between the two streams of knowledge as being conducive for an innovative integration approach to the school curriculum. The discussions in this section have indicated that, for a variety of reasons, IK is receiving attention and prominence, in contrast to the previous modern era where it

was neglected. Researchers are scrutinising and defining the significant role of IK in society and education.

Synoptically, curriculum integration in this study will mean an interdisciplinary process in which teachers utilise elements from various disciplines to solve a problem or discuss a theme (Jacobs, 1989, as cited in Loepp, 1999). Also, an integrated curriculum will be viewed as one in which teachers enhance or put a twist on discipline-based knowledge – rather than replace it entirely (Kain, 1993, as cited in Loepp, 1999). Hence, integration of IKS in the curriculum in this study would also mean: knowledge integration that includes the flexibility to reconfigure existing knowledge and the promotion of innovation (Grant, as cited in Huang & Newell, 2003); structuring of curricula around real-life concerns, issues, and problems, both personal and global (Beane, 1995); and multi-disciplinary, inter-disciplinary and trans-disciplinary learning (Harden, 2000).

1.2 IK AND THE SCHOOL CURRICULUM: GLOBAL CONTEXT

As already pointed out, UNESCO) and the World Intellectual Property Organisation, pioneered the role of IKS in 1978 (Zazu, 2008). Since then, there have been several other research initiatives.

Ninnes (2000) used discourse analysis techniques to examine the approach taken to minority group knowledge in two sets of junior secondary science textbooks. The specific purpose of the published texts was to incorporate IK into the textbooks. Ninnes revealed that the textbooks incorporated IK using examples relating to social activities, natural phenomena, technology, and drawing from well-known legends and myths. However, Ninnes reported that such generalisations run the risk of homogenising many different indigenous identities, and inadvertently creating stereotypes. The current researcher will seek to determine methods that avoid this pitfall, by respecting the individuality of various indigenous perspectives. Savage, Hindle, Meyer, Hynds, Penetio and Sleeter (2011) demonstrated that most teachers used culturally responsive practices, and that students

described teachers as caring for them as culturally located individuals. Savage et al. cited the limitation of relying on teachers alone to implement school-wide changes. The current researcher remedied this limitation by including the perspectives of Heads of Departments (HoDs) and Subject Advisors.

Chinn (2007) found that Asian individuals regarded IK and practices negatively compared to their United States colleagues – but this changed after a presentation on indigenous Hawaiian practices. United States participant perspectives did not change overall after the presentation; this may have been due to their existing familiarity with cultural differences. The Asian participants reported: (a) evaluating indigenous practices more positively; and (b) critiquing the absence of locally relevant science and knowledge in their national curricula. Both the US and Asian participants reported that a curriculum integrating IK cannot be test-driven, as this does not promote independent thinking, additional learning, or the application of this knowledge to local problems. As a result, the current researcher will seek methods of integration and evaluation that do not focus on tests – but rather on the application of IK.



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1.3 IK AND THE SCHOOL CURRICULUM: AFRICAN CONTEXT

Woolman (2001) concluded that a fully indigenous reorganisation of education in Africa is necessary, and that curriculum change should involve teachers. Shizha (2007) found that challenges in incorporating IK into science teaching were attitudinal, institutional, and systematic. Teachers had negative attitudes in relation to indigenous science, and were supportive of teaching the Western science curriculum. This negative attitude is similar to that of Asian participants in Chinn's (2007) study. Institutional challenges involved a “one-size-fits-all” approach, which is in direct contrast to the African medical tradition that involves a personalised, holistic treatment of one’s body and mind. Systematic challenges included “colonial and neo-colonial strategies of disinformation, systematically aimed at belittling and marginalizing Africa and Africans”, which creators of an IK curriculum must address by creating a “narrative which properly situates Africa’s history at the center of

the learning process” (Shizha, 2007, p. 13).

1.4 IK AND THE SCHOOL CURRICULUM: SOUTH AFRICAN CONTEXT

From its inception, the post-apartheid curriculum in South Africa has created openings for the inclusion of IK. This was premised on an implicitly suggested notion and principle, among others, to integrate value and to respect IK in teaching and learning. The curriculum must be flexible, so allowing learners to learn within their known local cultural knowledge, adapted to local needs (Department of Education [DoE], 2002). However, schools appear not to be taking full advantage of this opportunity to integrate IKS with the curriculum (Zazu, 2008; Meyiwa, Letsekha, & Wiebesiek, 2013).

In line with earlier versions of the curriculum, the 2012 National Curriculum Statement Grade R-12 – a combination of the earlier two Revised National Curriculum Statements for Grades R-9 and Grades 10-12 respectively – suggested the promotion of learner knowledge in local contexts and the valuing of IKS (Department of Basic Education [DBE], 2011).



The South African basic education system comprises primary and secondary schools, which are in turn grouped into bands, these being General Education and Training (GET) and Further and Education and Training (FET). The FET band is constituted by Grades 10-12 and non-higher education vocational training facilities. The GET band, has subdivisions called phases – the Foundation Phase (Grade 0 plus Grades 1-3), the Intermediate Phase (IP) (Grades 4 to 6), and the Senior Phase (Grades 7-9). The FET band is basically the primary school level of the system (Education in South Africa, n.d.). Although this study is going to primarily focus on the integration of IK in the Intermediate Phase (IP) curriculum specifically – scholarly work on the integration of IK in the individual Intermediate Phase Grades and subjects/learning areas, in the primary school generally, and in secondary schools, will also be explored to gain deeper insights into and exposure to the construct, IK integration in the curriculum.

Dziva, Mpfu, and Kusure (2010) wrote that in the African context, including South Africa, a curriculum involving IK would focus on cultural survival, environmental responsibility, and sustainable development (para. 3). Despite being contrasted in some way to the Western, hegemonic views of science – IK would actually facilitate the study of this type of science. This is because of the IK promotion of “science for all” and “education for all” (Dziva et al., 2010, para. 2). In order to properly implement this system, teachers would use concepts, themes, and topics that emanate from local/indigenous knowledge in their teaching. However, there is no formal system in place, and thus this does not happen in a systemic, regular, or predictable fashion. Challenges to implementation include the balance between superstitions and natural knowledge, communicating the new curriculum to parents, and making the lessons relatable and applicable to students’ everyday lives. The researchers recommended methods including engaging with the students’ native language, which may have a connection to the IK being taught, rather than relying on English.

Mosimege (2005) wrote that in South Africa, IKS implementation policies are based on several key drivers. One is to affirm African cultural values despite the growing globalisation that seeks to homogenise. Second is developing the services that IK Holders and Practitioners provide. These knowledge Holders and Practitioners include artisans, plant and herbal experts, traditional house builders, and the keepers of indigenous technologies such as mining, farming, and mathematics. Third is to emphasise the contributions that IK makes to the economy, and fourth is to interface IKS with other knowledge systems such as Western science (Mosimege, 2005).

Researchers have undertaken several initiatives focusing on the documentation and study of IK to benefit school curricula. Influenced by the requirement of the South African Curriculum 2005 that teachers integrate school science with IKS, Ogunniyi (2007a) focused on establishing the effectiveness or ineffectiveness of a Practical Argumentation Course (PAC) as a teaching tool to enhance teachers' understanding of a Science-IKS curriculum, and their ability to implement it. The researcher analysed data using a Practical Argumentation Framework developed for the purpose, and found that PAC

improved teachers' understanding and increased their awareness of the need to implement a Science-IKS curriculum in their classrooms. In addition, the PAC appeared to have made the teachers more skeptical of the belief that science is the only way of knowing or interpreting experience. Also, they seemed to be skeptical of the idea that IKS were based on superstitious beliefs. The teachers who participated recommended including the PAC, or similar programmes, in science teacher education programmes.

Ogunniyi (2007b) took the study further and the study formed part of the efforts of teachers to develop science teacher education programmes attuned to the postulates of Curriculum 2005. Ogunniyi used the same PAC to equip a group of science teachers with knowledge and teaching skills necessary to implement an integrated Science-IKS curriculum in their classrooms. The findings were that the teachers' understanding and awareness of the nature of science and IKS was significantly enhanced due to the course. Furthermore, teachers' perceptions shifted from seeing science and IKS as polar opposites, to considering the two thought systems as being compatible and complementary.



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Meyiwa et al. (2013) conducted a research project in the rural schools of Cofimvaba, Eastern Cape, in which the teachers participated directly in planning, researching, and developing learning and teaching materials that would be aligned with indigenous and local knowledge. These teachers used a *Reflect* process to carry out the collaborated research activities. This process is an innovative approach to adult learning and social change that fuses the theories of Brazilian educator Paulo Freire with participatory methodologies. The researchers were informed and guided by IKS approaches. The *Reflect* and latter approaches formed the conceptual framework for the current study. Some of the lessons the researchers reported on were:

1. It is essential that knowledge be shaped by local contexts.
2. Research projects using approaches like *Reflect* and IKS approaches lack baseline data and clear monitoring and evaluation procedures.
3. When introducing and/or suggesting new approaches to enhance the curriculum for

marginalised people, it is essential to work closely with the beneficiaries (Meyiwa et al., 2013).

Hewson, Javu and Holtman (2009) performed a qualitative pilot study on the integration of the IK of traditional health practitioners (THP) and the South African science curriculum in the Western Cape. The study was mostly premised on the thesis that South African teachers are not conversant with IKS, and thus found it difficult to integrate into the science curriculum – so that learners could, among other things, learn within the context of their cultural knowledge, as implicitly suggested by South Africa's revised National Curriculum Statement. The results of the study, *inter alia*, showed: (a) traditional health practitioners believed that South African learners need to know about African IKS; (b) IKS and science are both important in the education of learners; and (c) teachers could teach their IK integrated with science topics, and they suggested ways they could do this. The practitioners believed that teachers need to learn about IK. The teachers stated that IK should be standardised and validated by an indigenous organisation.



Most research in this field appears biased toward the science curriculum. Additionally, there seems to be no indication that much of the research has led to general application of the findings across schools or that it is translated into practical curriculum processes. The curriculum thus remains de-contextualised (Meyiwa et al., 2013). The various researchers also seem not to have investigated the conceptions of teachers regarding IKS, and its possibilities across the spectrum of school subjects in the South African curriculum.

Furthermore, anecdotal evidence among traditional leaders and IK proponents seems to reveal concerns with regard to the integration of IKS into the school curriculum. Jacobs (2015) seems to posit that teachers do not integrate IKS because the school curriculum statements are not explicit on how the integration should occur; and this leads to many different interpretations and implementation methods – some of which are more effective than others. Abah, Mashebe and Denuga (2015) appear to suggest that due to previous disregard for IK as being unscientific, teachers' conceptualisation of IKS and its value for

and enriching of the curriculum is limited and in need of exploration. The current researcher believes that it is not clear whether the previous claims hold true for all teachers. A final challenge, according to Jacobs (2015), seems to be that teachers have had little to no formal professional training in the integration of IKS in the mainstream curriculum. Teachers' conceptualisation of IK appears to be limited and narrow, and their understanding of how IK could be introduced and integrated with their pedagogy is limited (Abah et al., 2015; Jacobs, 2015). It is not clear to the current researcher whether the preceding claims are totally true, as some form of training and studies has been conducted (Seehawer, Ludwane, Mashozhira, Mhleka, Nuntsu, & Speckman, 2015). The latter conducted their pilot integration study in Grades 5 to 6 in the intermediate phase, Grades 7 to 9 in the Senior Phase, and Grade 10 in the FET band. Furthermore, Maluleka, Wilkinson and Gumbo (2006), in their study focusing on the relevance of the indigenous technology curriculum in Grades R-9, which includes Grades 4-6 in the Intermediate Phase – found that teachers do value indigenous technology, although they have challenges with integrating it into their lessons.



The current researcher will thus also attempt to explore these challenges/concerns to establish their veracity or otherwise. Although some studies have been conducted and position papers written on IKS and education in general, and the curriculum in particular, it is not clear, however, whether a comprehensive study on how teachers in the Intermediate Phase (IP) conceive IK in the Eastern Cape and its possibilities or implications for the curriculum (Abah et al., 2015; Jacobs, 2015). Likewise, it is unclear how many researchers have sampled the Eastern Cape teachers' views of how IK could be integrated with and utilised in the school curriculum.

The National Curriculum Statement Grades R-12, has created space for the integration of IK. However, teachers and schools seem not to be taking advantage of this space. As hinted above, the Grade R-curriculum statement policies are not explicit as to what IK knowledge to integrate and how to integrate it – and this perhaps is one reason for teachers not fully integrating IKS into their practice (Seehawer et al., 2015).

Premised on the above, this study is relevant in order to investigate ways to close the curricular policy gaps on the ways to implement the integration through practice in the classroom. The researcher proposes that the manner in which these policy gaps be filled and the proper implementation of an integrated curriculum is effected, ought to come from the implementers – the teachers. The focus of the study will be to investigate the strategies that Intermediate Phase school teachers view as being important to the integration of IK into the Intermediate Phase school curriculum, in order to create a system that school stakeholders can use to implement this knowledge.

1.5 MOTIVATION OF THE STUDY

Three experiences served as a motivation for the slant this study will adopt. First, in one of the meetings between the Eastern Cape Department of Education (ECDoE) and the Eastern Cape Portfolio Committee on Education – for which I am the researcher – the Member of the Executive Committee (MEC) for Education in the Eastern Cape, the late Mandla Makupula, and the ECDoE's Director of the Language-in-Education Policy Unit, Naledi Mbude-Shale, presented reports on the developments of a pilot project to incorporate indigenous languages as part of the official school curriculum in the Eastern Cape. Mbude-Shale highlighted the success of a pilot project in the rural Cofimvaba District, which was one of the 23 education districts – before restructuring the Districts to 12 - in the Eastern Cape. The pilot project involved Grade 4-7 learners who were taught mathematics, natural sciences and technology in their mother-tongue, isiXhosa, in 81 schools. The learner's performance improved drastically, the manager reported. This claim was echoed by the District Director of Cofimvaba, Mayizole Skama, and the Principal of one of the participating schools, Nkosinathi Mvumbi. The District Director further claimed that the learners understood mathematics concepts better – because they were taught in their mother tongue and not in English. He expressed hope that learners could be taught all their subjects in their mother tongue, as he had witnessed a positive impact on their academic performance in the district (Govender, 2015).

The reports and claims of the ECDoE MEC and the Director of the Language-in-Education Policy Unit, together with the claims of District Director and Principal, gave the researcher an idea: if the usage of an indigenous language as a language of teaching and learning could have such a positive impact on learner performance and self-esteem, what would the prospect be if IK could be integrated into the school curriculum deliberately and consciously. It was then that I began to reflect on the possibility of undertaking research on the integration of IKS into the mainstream IP curriculum.

Second, the idea to undertake the research germinated from a conversation the researcher had with a Chief Education Specialist (CES) and a Deputy District Education Specialist (DCES) of the ECDoE. These officials – also known as office-based educators as opposed to school-based educators – are appointed from the ranks of experienced teachers. They advise on and coordinate curriculum-related issues at schools. In the course of our informal discussion, the researcher commented that the reasons for poor performance of learners in the district could not only be ascribed to the usual factors bandied about, *inter alia* that schools are under-resourced, learners come from poor communities, and there is a lack of properly trained teachers. The non-integration of IK in the school curriculum might also be the cause, as the concepts taught are de-contextualised from the socio-cultural background of the learners. The two officials vehemently dismissed my assertions. Their arguments were: IK and indigenous languages while useful at home and in the community, would not be useful for securing work and for negotiating tertiary education. They intermittently asked, rhetorically, what use would IK have for learners? This negative attitude toward IK was surprising. These were some of the custodians of the curriculum, who were supposed to advise on the curriculum – basing their advice on the principles underpinning the national school curriculum. Respect for IKS is one of the principles. After the conversation, the researcher began asking questions: Are these officials aware of the space created for IKS in the curriculum? What is their understanding of IK? Have they ever been formally exposed to the notions, concepts, ways of knowing, the ways of viewing reality, and the ways of producing knowledge that undergird IKS? Have they ever tried to infuse IK into their

teaching when they were classroom teachers? If senior curriculum advisors display such a dismissive attitude – what about the teachers they are supposed to advise and guide with regard to teaching strategies? Do teachers also harbour such attitudes? These questions germinated the idea of undertaking this research.

Third, informal conversations with teachers indicated that the teachers may not be deliberately and consciously integrating IKS into their teaching, because the South African National Curriculum Statements were not explicit on how this should be done. They were unsure about how to integrate and what to integrate. On perusing the Grade R-12 National Curriculum Statements, my gut feeling was vindicated. The policy statements were not explicit as pointed out, and this had a significant impact on the slant this research took.

Lastly, the researcher regarded pursuing the research as an endeavour that would meet a personal intellectual need and which would benefit others. This claim will become clearer in the last section of this thesis. Undertaking research on the synergistic relationship between IKS, education and the curriculum, has been the researcher's goal for some time, since he was exposed to readings showing a connection between these fields during his Masters' studies. As far as the researcher can recall from his school years and his experience as a teacher at school and university level, he was never professionally or otherwise exposed and sensitised to what he believes are a wealth of possibilities for the integration of IK into education generally, and into the curriculum in particular. The readings inspired the researcher to undertake research on the integration of IKS and the curriculum in the context of South Africa and that he should energetically read position papers on and research undertaken on the integration of IK in the curriculum in Africa and globally. It is the researcher's wish that the research should enrich him intellectually, and that the study findings will enhance the awareness of others about the prospects of IK in education. Moreover, the research will hopefully lead not only to closing conceptual gaps the researcher has with regard to how IK can be integrated in the existing school curriculum in South Africa, but also to providing an opportunity to gain deeper

insight into and exposure on how IK can enrich the school curriculum.

1.6 STATEMENT OF THE RESEARCH PROBLEM

There is concern that the main implementers of the school curriculum, the school teachers, do not integrate IKS into their practice (Dziva et al., 2010); and among those that do integrate IK, there are no standardised methods or best practices for such instruction. Further concerns are that teachers appear not to integrate IKS – owing to the curriculum statements not being explicit on how integration should occur, and so leading to many different interpretations and implementation methods (Jacobs, 2015). Non-integration is contrary to what the principle of the South African school curriculum policy statements proposes, which is that the school curriculum should be flexible in valuing IK through integrating IK in the mainstream curriculum. Moreover, a concern has been highlighted that seems to suggest that teachers' conceptualisation of IK appears to be limited and narrow. Their understanding of how IK could be introduced and integrated with their pedagogy, is limited (Abah et al., 2015; Jacobs, 2015). This study proposed to investigate these concerns.

1.7 MAIN RESEARCH QUESTION

How is IK integrated in the Intermediate Phase school curriculum in the Eastern Cape Province?

1.7.1 Sub-Questions

- 1.7.1.1 How do teachers integrate IK into the school curriculum?
- 1.7.1.2 What are the views of Intermediate Phase school teachers on the integration of IK into school curriculum?
- 1.7.1.3 What role do Subject Advisors and HoDs play in supporting and monitoring the integration of IK into the Intermediate Phase school curriculum?
- 1.7.1.4 What strategies can be put in place to support and monitor the integration of IK

into the intermediate school curriculum?

1.8 PURPOSE OF THE STUDY

The purpose of this study was to investigate the integration of IK in the Intermediate Phase school curriculum by teachers in a selected Education District in the Eastern Cape Province.

1.9 AIMS OF THE STUDY

The study sought to:

- 1.9.1 establish how teachers in the Intermediate Phase integrate IK into the school curriculum.
- 1.9.2 investigate the views of Intermediate Phase school teachers on the integration of IK into the school curriculum.
- 1.9.3 explore the role played by Subject Advisors and HoDs in supporting and monitoring the integration of IK into the Intermediate Phase school curriculum.
- 1.9.4 come up with research-based strategies to support and monitor the integration of IK in the Intermediate Phase school curriculum.

1.10 SIGNIFICANCE OF THE STUDY

It is hoped that the study will make a theoretical contribution by discovering fresh indigenous terminologies – thus adding fresh notions to the epistemology of IK. The implications for education may be significant. The study could augment the existing IK body of knowledge, adding new understandings and conceptions of IK and its possibilities for the curriculum.

The researcher hoped to identify new and innovative teaching tactics that would improve classroom practices. Teachers' repertoire of teaching styles and strategies may be

enhanced and expanded, so benefitting the learners.

This study may re-ignite debates on the relevance of IK for classroom practice. The outcomes could add to the validation and re-evaluation of IKS in education. The findings and recommendations could lead to policy reformulation on the status of IK in the curriculum. A more conscious and deliberate effort to enhance and enrich the curriculum for the benefit of the learner, may result.

In short, the researcher hoped that the study will benefit and have implications for: (a) curricular innovations; (b) the National Department of Basic Education; (c) the Eastern Cape Department of Education; (d) teachers and learners; (e) IKS researchers; and (f) teacher training colleges and universities.

1.11 DEFINITION OF TERMS

1.11.1 **Curriculum:** 'Curriculum' is defined in a broad sense to mean the decisions on and planning of what is to be taught, as well as the practice of the *what* that has been decided on. Additionally, the curriculum includes the experiences of those who are exposed to it in schools (Mkosi, 2005). What is taught and how it is taught are socially and historically located, and culturally determined (Hooper, as cited in Forrest, 2000).

1.11.2 **Hybridity:** Bhabha (1994) defined hybridity as a mixture of IK with the Western-orientated knowledge of the school curriculum.

1.11.3 **Indigenous Knowledge (IK):** The definition of IK in this study subscribed to its conceptualisation by Dei et al. (2000) that it is a body of knowledge that refers to traditional norms and social values, as well as to mental constructs that guide, organise and regulate the people's way of living experience and knowledge of a given social group. The concepts *indigenous knowledge* and *indigenous knowledge systems* (IKS) shall be used interchangeably.

1.11.4 Integration: Integration in this study denoted the deliberate and conscious inclusion of IK into the mainstream school curriculum. Integration will be used interchangeably with the notion of indigenisation of the curriculum. It will mean the process of merging two phenomena, IK and Western knowledge, into one school curriculum (Hammersmith, 2007).

1.11.5 Intermediate Phase: This refers to Grades 4-6 in the South African school system.

1.11.6 Western Knowledge Systems: This concept referred to the content and context of knowledge systems driven by the values and cultures of Western civilizations (Hammersmith, 2007).

1.11.7 Third space: This construct referred to an abstract space created in the curriculum to accommodate integrated IK and Western-orientated knowledge. **Bhabha (1994)** is the originator of this concept which was slightly modified for this study.



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1.12 METHODOLOGY

Primarily the researcher intended to gain deeper understandings of and exposure to how teachers integrate IK in the IP school curriculum. Toward this end, this study was informed by the post-positivism paradigm that is elaborated on in Chapter Three. Among numerous ways of producing knowledge, the post-positivist paradigm is reductionist, logical, empirical and deterministic – and thus lends itself to different worldviews, multiple methods, and different forms of data collection and analysis (Creswell, 2013). Additionally, notions of pragmatism were used because this paradigm perceives both qualitative and quantitative research as being significant, and thus should be mixed in a single study (Johnson & Christensen, 2016). Thus this study was based on a mixed-methods research approach that included the use of both quantitative and qualitative research methods. Quantitatively, the research method used for data collection was a self-administered questionnaire; qualitatively, semi-structured interviews, Focus Group Discussions (FGD) and document analysis were research methods utilised. Furthermore, after the quantitative data was collected, coded and edited, the structured data was

analysed using the computer software Statistical Package for Social Sciences (IBM SPSS, 2015). Qualitatively, the intention was to code and analyse the textual data utilising NVivo (QSR International) – a computer software program that facilitates the management, searching and retrieval of narrative data. However, the use of NVivo did not materialise, and the reasons are given in Chapter Three. Thus, unitising, categorising and thematising of data was performed manually. All the preceding aspects are described and discussed in Chapter Three.

1.13 DELIMITATION OF THE STUDY

The focus of this study is on the integration of IK in the IP school curriculum in a selected Education District in the Eastern Cape Province. Sampled schools were from the District. This study focused on teachers, subject Heads of Department and Subject Advisors as they were perceived to possess the expertise and knowledge relevant for this study.

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1.14 ORGANISATION OF THE STUDY

The study comprises six chapters:

1. **Chapter One** includes the background/context of the study, statement of the problem, purpose of the study, research questions, significance of the study, delimitations of the study, limitations of the study, and definitions of terms. This section also includes a synoptic descriptive outline of the methodology of the study.
2. **Chapter Two** reviews the literature relevant to the study. In this chapter, the researcher will include a critical conceptual description and discussion of the theoretical framework that will guide the study.
3. **Chapter Three** describes and discusses the research methodology used in the study. The elements of the methodology to be described and discussed will include: post-

positivism as the undergirding paradigm; the mixed-methods approach to be utilised; and the research methods to be used. This chapter also explains how ethical issues were considered.

4. **Chapter Four** is concerned with data analysis, presentation and interpretation. The data collected from participants/respondents at the selected Education District are presented and analysed.
5. **Chapter Five** contains discussion of the findings reflected in Chapter Four, which is made in relation to the theoretical framework and the literature review that is discussed in Chapter Two.
6. **Chapter Six** presents the summary, conclusions, recommendations and possible areas for further research.



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CHAPTER TWO

REVIEW OF THE LITERATURE: TOWARD A THEORETICAL FRAMEWORK

2.0 INTRODUCTION

This chapter presents a review of the relevant literature on the theme of integration of IKS into the school curriculum. The chapter starts by reviewing the theoretical framework and is then followed by the empirical literature. It should be noted that the theoretical framework consists of two parts: (i) an actual theoretical framework (Miles & Huberman, 1994), and (ii) what the researcher terms a ‘supplemental framework’ derived from the notions, constructs and concepts from the literature review – hence the sub-title of this chapter. Toward this end, the literature review has been divided into four parts to produce a systematic, orderly and seamless presentation that is easy to read. The shape, structure and nature of this literature review were influenced by exposure to ideas, arguments and counsel from several scholars and authors, whom the researcher has acknowledged.



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Some writers have noted how successful research rests on a well-planned and thorough review of the relevant literature available (Jesson, Matheson, & Lacey, 2011). Taylor (2001), Bless, Higson-Smith and Kagee (2006) stretched this claim further by positing that a literature review is structured and takes as its primary aim an evaluation and classification of what has been written before by dependable and reliable scholars. Sources and research problems are identified according to which sources will be classified. Analytical points were used to guide the selection, classification and evaluation of the literature and other relevant sources. Oberzinger (2005) maintained that a literature review provides a basis for the analysis which helps the researcher to comprehend the structure of the research problem and to present justification for the research. On the other hand, Wellington, Bathmaker, Hunt, McColluch and Sikes (2005) posited that a literature review relates only to a formulation of research questions, the framing and design of the research, as well as the methodology to be used.

De Wet et al. (1981), cited in Brynard and Hanekom (1997), argued that a literature review

facilitates obtaining perspectives of the most recent findings related to the topic of the research, and that it reveals the best methods and instruments for measurement and statistics which can be used to improve the researcher's own research results and help determine the actuality of research on a topic.

To paraphrase Majam and Theron (2006), the need to carry out an effective and efficient literature review, and the importance and relevance thereof when undertaking research, are vital and cannot be overemphasised – as the process reviews a body of knowledge and forms the basis or cornerstone of the research to be undertaken. A literature review binds the research together in a well-planned and executed research process (*Ibid.*).

2.1 PART ONE: THEORETICAL FRAMEWORK: TOWARD A THEORETICAL FRAMEWORK

As noted earlier, the theoretical framework for this study consists of two parts: (i) an 'actual' theoretical framework, and (ii) a 'supplemental framework'. In turn, the actual theoretical framework is drawn from Huang and Newell's (2003) notions in *Knowledge Integration Processes and Dynamics*; Beane's (1995) theory of *Curriculum Integration and the Disciplines of Knowledge*; and Harden's (2000) theory of the *Integration Ladder: A Tool for Curriculum Planning and Evaluation*. The three theories are further explored below, and the supplemental theory derived from the literature review on discourses on IK and postcolonial concepts and constructs is discussed under section 2.3.

2.1.1 Huang and Newell's (2003) Knowledge Integration Processes and Dynamics

Grant, cited in Huang & Newell (2003, p. 168), asserts that knowledge integration requires "the diversity and strategic value of specialized knowledge, as well as an organization's capacity to integrate the knowledge in an effective manner". Organisations meet these requirements by setting a direction and implementing organisational routines. Other indicators of knowledge integration include the flexibility to reconfigure existing knowledge, the promotion of innovation, as well as the space for specialists to continuously practise their new skills and to coordinate with one another. In the current

study, it is assessed whether the organisations under study and their members (i.e. the school districts and their employees) are meeting these requirements in the development of IK curricula. To create and implement the curriculum for a new subject – teachers, HoDs and Subject Advisors must cooperate with one another and retool existing pedagogical practices with innovative, new ideas.

The knowledge integration theory is conceptualised by Huang and Newell (2003), whose main thesis is that knowledge can be integrated from different sources through the ‘cross-pollination’ of ideas from different networks – as well as from social networks. Writing from a business perspective, the authors outline some of the preconditions for the attainment of knowledge integration, like the previous efforts of the organisations to integrate knowledge (from different departments), investment in social capital, and the creation of common knowledge. In their paper, knowledge integration is defined as

... an ongoing collective process of constructing, articulating and redefining shared beliefs through the social interaction of organizational members (Huang & Newell, 2003, p. 167)



Huang and Newell (*Op cit.*), citing Grant (1996) in his exploration of the integration theory (again writing in a business and organisational context), outline the two building blocks of the theory. These include the need for specialisation to achieve economies of scope and the linking mechanisms to streamline and coordinate specialised workforces. Again, this is related to the arguments by Beane (1995) and Harden (2000) that there is a need to bring together disparate forms of knowledge into a centralised form where it is easily accessible across different departments or subject areas in the form of a school curriculum. This study on the integration of IK in the Intermediate Phase (IP) school curriculum in a selected Education District in the Eastern Cape Province, South Africa, suggested that the disparate forms of knowledge – the school knowledge/Eurocentric Western scientific knowledge and IK – should be brought together into a centralised form and space, being the school curriculum.

For Huang and Newell (2003), the theoretical underpinning of knowledge integration

comes from the organisation's cross-functional teams that are used for creativity and innovation, generating consensus through collective input, investigation and negotiation, as well as managing strategic change initiatives. The main difference between the knowledge integration theory and the curriculum integration theory, as represented by Beane (1995; 2016) and Harden (2000), is that while Huang and Newell (2003) laud specialisation and argued that specialisation is still needed within organisations, a certain forum should be conceptualised for the specialists to communicate and coordinate at their level. On the other hand, Beane (1995) and Harden (2000) call for the amalgamation of specialties or individualities toward the creation of all-encompassing transdisciplinary knowledge streams.

In their empirical studies, Huang and Newell (2003) realised that common knowledge was primarily created within project teams before being shared across the whole organisation. However, the authors noted that while organisations sometimes had workshops or seminars and meetings where information would be shared across the organisation – the most effective knowledge integration came from an individual's attitudes and their propensity to learn the knowledge that most strongly influenced the effectiveness of creating common knowledge. In addition, Haung and Newell (2003) argued that knowledge integration was difficult and this was compounded by the fact that knowledge is only as valuable as the stakeholders perceive it to be. For example, if people do not see the knowledge created in other departments as being important, they will have little motivation to absorb it and use it in their respective projects. Oroma and Ali (2018) in the mixed methods context, aimed to highlight the importance of IK and illustrate ways that technology could be utilised to preserve it, and found that some participants harboured negative attitudes toward traditional cultural practices because it was deemed to be primitive and outdated in respect of formal education, modernisation and urbanisation. In relation to this study, some of the respondents and participants, teachers, HoDs and Subject Advisors, expressed a negative disposition toward IK and IK was perceived as being valueless and/or inferior. Thus such individuals were less willing to integrate. This becomes clear from the QUAL data in Chapter Four.

Looking at the work of Huang and Newell (2003) from an IK integration perspective, it is

easy to see the parallels between the ‘projects’ or ‘departments’, and the subject areas in classrooms. However, the main difference between Huang and Newell (2003) and the other writers calling for the integration of core themes or transdisciplinary studies, is that the former put emphasis on knowledge sharing between different ‘projects’ – with the goal of people ultimately knowing more than they did before. This contrasts with Harden (2000) and Beane (1995), who argued that sharing knowledge is only a part of integration – as the individualities should give way to the whole.

2.1.2 Beane’s (1995) Curriculum Integration and the Disciplines of Knowledge

Beane’s (1995) notions on curriculum integration and the disciplines of knowledge versus the subject-orientated approach to curriculum organisation finds expression in the theory’s description of: curriculum integration; exposition of the shortcomings of the subject approach to curriculum organisation; and his arguments for curriculum integration related to disciplines of knowledge. For this study, Beane’s notion on curriculum integration and its relation to the disciplines of knowledge vis-à-vis the subject-orientated approach to curriculum integration, is the focal point. His arguments against a subject-orientated curriculum integration are critical, in that they also covertly and overtly reveal reasons why a broad generic knowledge discipline-orientated curriculum ought to be preferred over a subject-orientated curriculum integration. Furthermore, discussion of the subject-orientated curriculum integration approach better facilitates one’s understanding of the processes involved when teachers use this curriculum integration approach, when or if they integrate IK in the IP school curriculum.

2.1.3 Beane’s Conception of ‘Disciplines of Knowledge’ versus ‘Subject Areas’

To differentiate between Beane’s (1995) constructs of ‘disciplines of knowledge’ approach to curriculum integration vis-à-vis the ‘subject approach’ to the curriculum, was for the researcher, a rather challenging exercise. For one to comprehend and elucidate the meaning of the two constructs – a conceptual, descriptive and analytical exercise on both was deemed vital. This sub-section attempts to do this.

Beane (2003) posited that a discipline of knowledge is a field of inquiry into some aspect

of the world, and provides lenses through which the world is viewed. It is a specialised lens used to interpret or explain various phenomena in the world and provides a sense of community to those interested in a common shared special interest, who use it to expand their knowledge in that particular field. The disciplinary boundaries are fluid and “often connect with other disciplines to create interdisciplinary fields and projects” (Beane, 1995, p. 617). Interdisciplinary fields and projects provides a good ground for integration of indigenous knowledge and the Western discourse (*Ibid.*).

While school-based subject areas like discipline of knowledge also partition and separate knowledge into distinct compartments, they differ from disciplines of knowledge (Beane, 1995). They have limited knowledge and are based on representations of disciplines. Some subjects like algebra or home economics are subsets of disciplines, and others like career education and foreign languages lay claim to some discipline. Their inclusion in the curriculum is for economic, social or academic aspirations. Thus, a discipline of knowledge and its representative school subject area serve different purposes. The discipline of knowledge has a much more fluid disciplinary boundary than its subject area boundary would have (*Op cit.*).



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2.1.3.1 Beane on Curriculum Integration

Beane (*Op cit.*) described an approach based on disciplines of knowledge curriculum integration theory – in contrast to a subject-centred approach. Curriculum integration theory posits that schools should structure curricula around real-life concerns, issues, and problems, both personal and global. This results in a “search for self- and social meaning,” as well as the acquisition of “organic” knowledge (Beane, 1995, p. 616). This relates to the current study, in that many aspects of IK are based around “real-life” concerns, such as the environment (global) and hygiene (personal). The researcher assessed how South African teachers implement these ideas in practice.

The point of departure for Beane’s theory is that ‘subjects’ are like silos and on their own are incapable of solving the day-to-day problems that people face. As a result, Beane (1995) proposes an alternative of interdisciplinary fields and areas that tackles issues and

not subjects. Because IK itself is not structured around 'subjects' like English or Mathematics, Beane argues that the first step in terms of integrating IKS into the school curriculum would be through breaking down subject walls – because, under the current curriculum, a discipline in IK would have to be broken down into several subjects so constraining it in the process. To Beane (1995), “curriculum integration, in theory and practice, transcends subject-area and disciplinary identifications” (Beane, 1995, p. 619).

It is also important to note that Beane’s definition of ‘curriculum integration’ does not only mean the incorporation of IK into contemporary education systems, but rather the amalgamation or integration of different subject areas into what he calls ‘disciplines’. Beane (2016) builds up on the earlier theory by not only proposing what needs to be done – but how to do it.

It would appear that, initially, before his 2016 work, Beane seemed to have had made rather exaggerated, cumbersome and convoluted anti-subject-approach claims to curriculum integration. Disciplines of knowledge as broad as suggested by Beane (2016) would be difficult to include in any curriculum, because they would be constituted and underpinned by an array of different knowledges. Thus, the researcher argues that, for practical reasons among others, a reduction into subject areas of the various knowledge areas comprising disciplines of knowledge is a practical necessity. Opining further, to avoid ‘rigidity’ between subject areas, and to achieve Beane’s fluid boundaries, concerted efforts by teachers could be made to draw from other subject areas other than their own subject/learning areas when teaching. As an illustration, teaching of a particular topic and/or theme can transcend the boundary of a school subject. Beane (2016) appeared to have had been making, in a convoluted and complex manner, a case for a multidisciplinary or transdisciplinary approach to integration – that could be perceived to depict elements of a subject-orientated approach to integration. The basic assertion the author appears to be making is that curriculum integration should not be focused on subject area knowledge – but should be driven by projects, themes, activities and practical tasks that draw from a number of subjects located in a broad discipline of knowledge.

2.1.3.2 Beane's Theory on a Subject-Orientated Curriculum Integration Approach: A Critique

Beane (*Op cit.*) highlighted the shortcomings of the subject-orientated approach to curriculum integration – bolstering, in the process, the case for his discipline of knowledge-based curriculum integration. Beane critiqued the subject-area approach to integration as follows:

First, the separate subject-approach has incorrectly portrayed the disciplines of knowledge as ends rather than means of education. The approach has made young people (read learners) and adults (read teachers) believe that education is about acquiring, mastering or collecting facts, principles and skills that have been located in a particular isolated subject – instead of learning such facts, principles and skills to use to understand and inform larger real-life purposes (Beane, 1995). Beane seemed to suggest that the disciplines of knowledge should be the means of education, where the acquiring of facts, principles and skills should not be for the purposes of only knowing them for usage in future endeavours. To the contrary, they should be acquired and mastered to solve and understand immediate real-life issues and problems. This is a process that the disciplines of knowledge encourage and facilitate.

Second, the separate-subject approach is an inappropriate way to follow, because studies have indicated that learners do even better when the curriculum is integrated (*Op cit.*). Third, both the separate subjects and the disciplines are both the creation of academics for their own interests and purposes – and are imposed on schools. Thus, the subject approach suggests that effective intellectual activity only happens within subjects, a notion that does not cater for others with different views and inspirations who may not even be in the academic fold. Those that impose this subject approach, the academics, are mostly white, upper-middle class and male – a limited group – who foster knowledge that they value and consequently select, thus marginalising the cultures of “other” people in the separate-subject approach. The subject-centred approach dominates the curriculum and schools because of the few imposing academics, who have the cultural capital (*Op cit.*). Beane's arguments echo to an extent an assumption in this study, in that

this study assumed that Western Eurocentric knowledge enjoys a hegemonic position in the school curriculum – a remnant of imposed knowledge during colonialism, generally, and apartheid in the case of South Africa. Furthermore, the researcher opines that the colonisers had cultural capital, among other ‘capital’, to position as such Western Eurocentric knowledge and to marginalise the indigenous knowledge of the colonised in the process. The researcher posits that no knowledge should be relegated to a lesser secondary position.

Pressing the point further, Beane (1995, p. 618) purported that the knowledge in separate subjects favours privileged learners, because of the subjects’ respective selective content – while “working harshly against those from nonprivileged and nondominant cultures”. The researcher concurs with Beane’s argument. The researcher believes that the relegation of IK to a secondary status has had a perceived adverse impact on the learners who are not from the dominant classes. Additionally, the researcher argues that the learners in South Africa had had to contend with a mainly foreign culture and foreign languages imposed on them by the education system through the curriculum. As pointed out in this study, the re-valuation and validation of IK through integration in the curriculum, may improve learners’ performance. Beane argued that the separate-subject approach had forced, historically, learners to memorise the names and routes of European explorers, and so on – in so doing memorising facts and information that have no relevance to their lives. The teachers are also similarly affected by the “deadening effect” of the separate-subject approach to education (Beane, 1995, p. 618). This approach is a legacy of Western-style classical humanism that looks at the world in divided components (*Ibid.*), which, one may add, is antithetical to how indigenous peoples perceive reality and the environment. The nature of IKS is holistic and value-laden (Aikenhead, 2001; Ogunniyi & Ogawa, 2008).

The separate-subject approach is protected by four factors (Beane, 1995). First, it is protected by a network of educational elites – the academics, teacher-educators in universities, subject supervisors, publishers, and subject-area associations, including those who have an interest in particular subjects. Second, parents and other adults who want their children taught the same way they were, defend the subject approach. Third,

teachers and supervisors build their professional identities around subjects they teach or supervise. Their identities and status are associated with subject areas. They prefer to be known as, for example, the history teacher, the geography teacher, the language teacher – and so forth. These teachers protect their subject areas and trying to intrude into a teacher's subject area is unwelcome. Finally, education conservatives regard the subject approach as their own preserve, and the progressives who propagate curriculum integration are perceived to want to appropriate it (Beane, 1995). One can opine that anecdotal evidence and one's experience in and observation of the teaching sector, support to a great degree, what Beane articulates as being protectors of the separate-subject approach to integration. For example, school teachers are generally proud of their subjects and would vociferously protect their status, when compared to other subjects claimed to be more important than theirs. University teachers would be equally protective of their subjects when funding is discussed. Relevant to this study would be the question: Are the teachers using a subject-orientated approach to integration or are they more inclined to implement Beane's type of integration when they integrate IK into the IP school curriculum? The answer is provided in Chapters Four and Five.



2.1.3.3 Beane: Knowledge in the Context of a Discipline of a Knowledge Integrated Curriculum

The construct *knowledge* is one that enjoyed centrality in this study. Fundamentally, this study was about the integration of IK and the school knowledge in the IP school curriculum. In this study the school knowledge is equated to Western Eurocentric knowledge emanating from the Global North. The Western knowledge is perceived as enjoying centrality and a hegemonic position in school curricula and the university curriculum vis-à-vis indigenous knowledge that is positioned at the periphery of mainstream curricula (Heleta, 2016). This makes it even more important to look at Beane's (1995) conception of knowledge in an integrated curriculum.

Beane (*Op cit.*) tackled the description and analysis of knowledge in curriculum integration and the disciplines of knowledge, by responding to the following questions:

“How does knowledge look in the context of curriculum integration? What happens to the disciplines of knowledge? How are they used?” (p. 619).

Beane (*op cit.*) suggested that the knowledge in curriculum integration is organised in themes or centres of learning experiences; themes that are drawn from real-life concerns such as cultures and identification; jobs; money; or the environment. Teachers also claimed to use themes, but were not clear whether they did this in collaboration with learners. Beane added that themes are then addressed by activities, but subject areas that may contribute to the theme are *not* identified. The theme provides the context and motivation and not the isolated subjects. This may be interpreted as meaning that teachers or learners do not have to identify subjects that may have knowledge that would assist in activities to address a theme, because, as noted earlier, Beane asserted that curriculum integration – in theory and practice – transcends subject-area and disciplinary identifications. Therefore, integrative activities should use knowledge without considering subjects or academic discipline lines per se. It is thus the case that teachers are primarily “generalists” and secondarily “content specialists” (Beane, 1995, p. 620).



Beane suggested that activities should not retain subject-area and disciplinary distinctions around a unifying theme. The focus should be on projects and activities rather than subjects. This argument is rather questionable – not that it is wrong, but because the projects and activities usually emanate from a subject content, which is linked to a broader discipline. The disciplines of knowledge themselves would be too broad in content, making teaching the “teachability” of the disciplines questionable. However, Beane (1995) critiqued this subject-orientated-favouring position and remarks that those who propagate this approach are pretenders to the disciplines of knowledge-orientated curriculum integration. He seems to suggest that the multidisciplinary and interdisciplinary arrangements of curriculum integration do not meet the principles and processes of his disciplines of knowledge-orientated curriculum integration. Harden (2000), whose integration ladder theory is discussed in section 2.2.3 below, would be labeled ‘a pretender’ by Beane – because Harden’s integration ladder theory proposes, among other things, that multi-disciplinary and interdisciplinary integration is based on subjects.

Furthermore, Beane (2003, p. 616) appeared to suggest that knowledge in curriculum integration is used by learners in an inorganic – artificial manner – in that learners use it in the “context of problems, interests, issues, and concerns at hand”. The researcher would venture to claim that learners and teachers utilise knowledge in a similar fashion when employing a subject-orientated approach to curriculum integration. They would source knowledge from other subjects to tackle teaching and learning activities like themes, projects and assignments, and would use and draw from cross-subject knowledge to enhance their understanding of certain concepts. To the researcher, there appears not to be a huge difference between Beane’s discipline- orientated curriculum integration and the subject-orientated curriculum integration approach. The difference appears to be a matter of emphasis on themes or subjects: Beane’s approach emphasises themes as being the focal point, drawing from subject areas constituting the disciplines of knowledge and the subject approach, and emphasises subjects as the starting point. Harden’s (2000) integration theory, the integration ladder, is now discussed below.



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2.1.4 Harden’s (2000) Integration Ladder: A Tool for Curriculum Planning and Evaluation

Harden’s (2000) integration ladder – which is generally written for the medical curriculum integration and the medical teacher – is deemed equally suitable for this study as it explores the construct of *curriculum integration*, which is one of the constructs central to this study. The integration ladder describes intermediate points between the extremes – subject-based teaching at one end and full integration at the other end. To the researcher, Harden’s ladder attempted to illustrate how teachers transition from a subject-based knowledge to an integrated knowledge in teaching. It must be noted that Harden’s use of the concept *discipline* is not the same as Beane’s (1995) conception of *discipline*. Harden appeared to use the term interchangeably with the term *subject*, as in a *school subject*.

The Ladder's 11 steps that represent and describe the 11 points between subject-based teaching and full integration are:

- Isolation
- Awareness
- Harmonisation
- Nesting
- Temporal co-ordination
- Sharing
- Correlation
- Complementary
- Multi-disciplinary
- Inter-disciplinary
- Trans-disciplinary (Harden, 2003, p. 551).

The ladder represents 11 steps that transition from the subject-based approach to integrated teaching and learning. On the other hand, in the four steps *isolation*, *awareness*, *harmonisation* and *nesting*, the subject or discipline is the focal point, while in the other six steps, *temporal co-ordination*, *sharing*, *correlation*, *complementary*, *multi-disciplinary* and *inter-disciplinary*, integration across subjects is emphasised. With the last *trans-disciplinary* step, the learner is in control of integration and is provided with tools to do so (*Op cit.*). With the he trans-disciplinary step, Harden (2000, p. 555) cited Alfred North Whitehead's opinion that "There is only one subject-matter for education, and that is Life in all its manifestations." This echoes the sentiment of organic and life-based lessons from the disciplines of knowledge curriculum integration theory (Beane, 1995) – which are related to aspects of IK in this study. Harden's ladder is presented visually below.

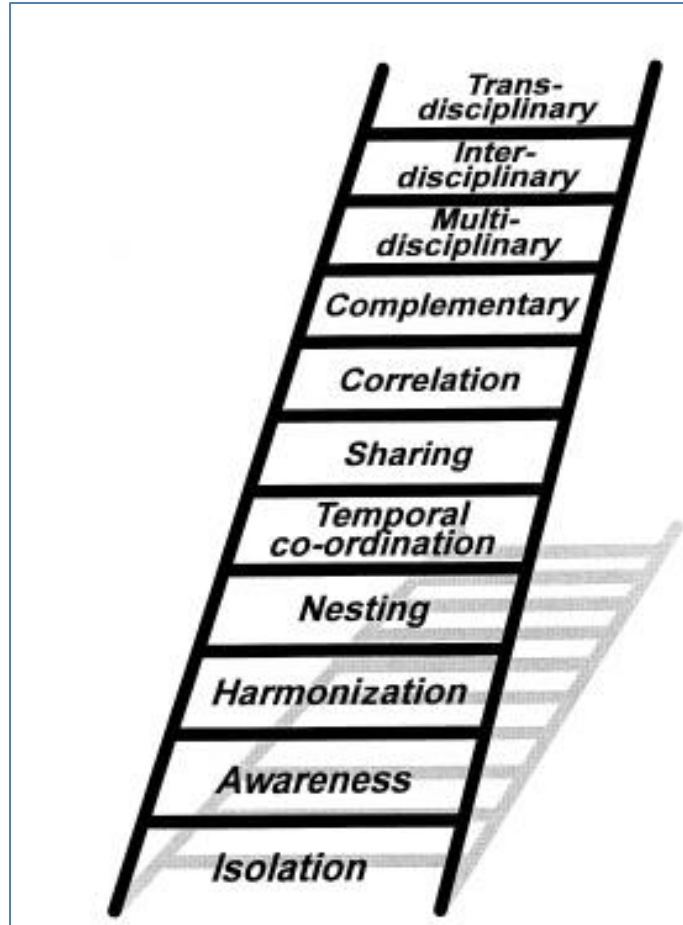


Figure 2.1: The integration ladder

(**Source:** Harden, 2003, p. 552)

A brief exposition of the 11 steps follows.

Step 1 Isolation

In this stage, subjects are taught individually by subject specialists who disregard other subjects' contribution to other or related subjects. This isolationist approach is reflected in the arrangements of the time-table, where the slots are labelled with the names of the individual subjects. In short, no relationships between subjects are established, and if it happens, it happens unintentionally. This silo approach to teaching occurs until a teacher becomes aware or is made aware of the content covered in other subjects (Harden, 2000).

Step 2 Awareness

Although the emphasis still remains on individual subjects, there is realisation that there are synergies around and between the subjects. There may be communication between teachers of respective subjects on the aims, objectives, content and topics of their subjects – but still there will no explicit integration. The information on other subjects would be used to avoid aspects like duplication of information or redundancy. This may happen until harmonisation occurs (*Op cit.*).

Step 3 Harmonisation

Harden (2000) explained that harmonisation occurs when teachers of respective subjects begin to consult and communicate with each other on their respective subjects. The communication may be in informal or formal settings – like curriculum planning committees and meetings. The communication and consultation process may be overseen by a member of staff who has an overall responsibility for several different subjects. It is during these sessions that possibilities of integration can be observed, as teachers are encouraged to relate their subjects to others to contribute to the overall curriculum. The focus remains on the subject, but the teacher make connections between the topic in his/her subject and other subject areas of the same subject taught previously or to be taught later (*Op cit.*). At this stage, one could opine that integration is still intra-subject based. Some semblance of inter-subject integration begins in the following stage - nesting.

Step 4 Nesting

In the fourth stage, nesting, generic skills and content from other subjects in the curriculum are drawn upon and utilised to enrich the content of one subject. During this stage, also termed 'infusion' (Glatthorn, 1994, cited by Harden, 2000, p. 553), while the generic skills and content from other subjects is used in a particular subject, the subject teaching continues to be subject-based and the subject remains the preserve of the particular subject teacher (*Op cit.*).

Step 5 Temporal co-ordination

In this stage the subject remain relatively autonomous from other subjects, but related topics from different subjects are taught at the same time. The timetable is organised in such a manner that similar topics from different subjects are taught on the same day or week, but remain part of the subject. Concepts are of the different subjects taught and studied separately, and the learners themselves have to find the relationships. This stage is perceived to be an important starting point of a more integrated curriculum (*Op cit.*).

Step 6 Sharing

This sixth stage is sharing – where two (complementary) subjects share their content and teaching. The respective teachers of two different subjects may decide to jointly plan and teach the overlapping concepts, skills or attitudes. This step signifies a move toward fuller curriculum integration (*Op cit.*).



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Step 7 Correlation

The seventh stage of correlation goes beyond sharing as an integrated teaching session is introduced in addition to the subject-based teaching. Furthermore, areas of interest from different subjects are brought together. The areas or topics are tackled from the perspectives of different subjects. The content or knowledge from the different subjects contribute to enhanced understanding and clarity of the given topic or project or assignment (*Op cit.*).

Step 8 Complementary programme

The eighth step is an extension of the seventh stage, in that it has both a subject-based and an integrated approach. Furthermore, the shared content takes up more time and resources than the individual subjects. For example, the various subjects would contribute to a theme or topic that is the focus and not necessarily the subject (*Op cit.*). This is in line with Beane's (1995) disciplines of knowledge curriculum integration theory that was

noted earlier. However, the subject would not be completely discarded; where an opportunity for a subject-approach is presented, subject teaching would occur (Harden, 2000).

Step 9 Multi-disciplinary

In the ninth stage, several subject areas are brought together in a single programme. Themes, topics or issues are the focus for learners' learning. The themes would be taught in an integrated manner. The themes or issues could be a structured body of knowledge that transcends subject boundaries, but, simultaneously, they would still be viewed through the lens of subjects.

Step 10 Inter-disciplinary

A further emphasis on themes occurs during this stage. The interdisciplinary integration moves from just combining subjects to building themes out of a combination of the subjects – and in the process the subject perspective may be lost, which would be contrary to the multi-disciplinary approach. Subjects in the timetable would not be denoted as such, and no reference would be made to individual subjects. As it is, this step is a higher level of curriculum integration (*Op cit.*).

Step 11 Trans-disciplinary

The last stage goes beyond themes and looks at real-world problems and how they can be resolved with available knowledge and not just 'themes'. In other words, the last stage combines different 'themes' to solve issues that people face every day. As with the interdisciplinary step, the curriculum transcends the individual subjects and themes, and acquired knowledge is to be applied to resolve real-life issues and challenges. This is termed 'authentic integration'. If IK could be integrated in this fashion with the existing school curriculum, then it would be in the process of being revalidated and IK would be rightly integrated.

Harden (*Op cit.*) however admitted that the integration ladder would require extensive changes – before it can be implemented. The author further outlines some of the pre-conditions that need to exist, before the implementation of the ladder can take place. For example, there is a need for agreements between departments before the ladder can be achieved. Most importantly, subsequent to the agreement between departments, there is a need for syncing timetables and syllabuses – especially from the fourth stage.

Harden's (2000) integration ladder advanced the theory that integration can only be achieved when knowledge is taught in themes and not subjects within schools. As seen from the ladder – from the bottom it starts with isolated subjects and then teachers become aware of the need to combine the subjects to create thematic areas. As one goes up the ladder, the subjects' areas are combined, ending up with trans-disciplinary studies that are conducive for integrating IK in the school curriculum. This is consistent with the argument by Beane (2016), where he argued that IKS are based on 'real world' issues, which cuts across the individual subjects that are taught at school. Harden (*Op cit.*) went further by outlining the possible steps that one has to take from isolation (individual subjects) to transdisciplinary issues, which are integrated and not limited to one subject.

2.2 PART TWO: THE LITERATURE REVIEW

2.2.1 Conceptions of Indigenous Knowledge Systems

While the terms indigenous knowledge and indigenous knowledge systems, are used interchangeably in this study, there is a concerted effort here to make a distinction between the two. For Odora-Hoppers (2002), knowledge is a universal heritage and a universal resource. On the other hand, the word indigenous refers to the root, and something that is natural or innate. As a result, IK refers to knowledge generated and used in a specific localised space. In a similar vein, Njoku (2001, p. 2) noted that the logical assumption when indigenous or endogenous knowledge are defined, should be that "it refers to knowledge coming from local people themselves, knowledge available in

the land, in its history, its culture, its memory, its geography and its linguistic heritage”. On the other hand, individual knowledge systems refer to the combination of knowledge systems encompassing technology, social, economic and philosophical learning, or educational, legal and governance systems (*Ibid.*).

Bitzer and Menkveld (2004), cited in Msila (2016a), offered a similar definition when they defined IK and not individual knowledge systems. The specificity of IK and the broadness of IKS are illustrated by Khupe’s (2014) definition of the two concepts. IK is specific forms of knowledge that are local and specific to a place. It could be viewed as being synonymous to ‘ways of knowing’. On the other hand, IKS are “the totality of the knowledge that a community holds. IKS includes worldview, and is therefore broader than IK” (Khupe, 2014, p. 19). As pointed out, the researcher used IK and IKS interchangeably. To add to this, this study subscribed to the meaning that IK constitutes those aspects of IKS that are more likely to be identifiable in the environment as part of the ways of life of the teachers, subject HoDs and Subject Advisors, and which could be used in any classroom (Òtúlàjà, Cameron, & Msimanga, 2011). Abah et al. (2015) also made a distinction by outlining that while IK refers to local knowledge that is unique to a given culture and is acquired by local people through the accumulation of experiences, informal experiments, and intimate understanding of the environment in a given culture – IKS are practical, personal and contextual units that determine how that knowledge is used, governed and harnessed toward the daily livelihoods of the specific culture or community.

In their attempt to define IKS, Berkes, Colding and Folke (2000) outlined the various challenges they encountered given of the enormity of the term. Instead of defining IKS, they rather described it as traditional knowledge that is intrinsically like Western knowledge in that it is based on accumulated observations – but differs in that it is supremely abstract, while Western knowledge is primarily concrete. Battiste (2002) argued that finding a respectful way of comparing Eurocentric and indigenous ways of knowledge and including both into contemporary modern education – is not straightforward. The author goes on to point out that finding this balance is the first step in remedying the gap in contemporary educational systems that do not have a blended

educational context that respects and builds on indigenous and Eurocentric knowledge systems. Just like Berkes et al. (*Op cit.*), Battiste (2002) instead described IKS as the binary opposite of Western knowledge. The author goes on to espouse that as a concept, IK benchmarks the limitations of Eurocentric theory - i.e. its methodology, evidence and conclusions reconceptualise the resilience and self-reliance of indigenous people, and underscores the importance of their heritage and educational processes.

Most authors have similar conceptions of the term *indigenous*. However, as Dei et al. (2000) claimed, it is problematic to define IK, and equally difficult to demarcate the parameters for the purposes of scrutiny. However, Mapara (2017) appeared to have a clear parameter as to who *indigenous* refers to. He stated that 'indigenous' predates colonialism. The term "does not refer to colonialist or their descendants but those who are descendants of the original inhabitants of those lands occupied by colonialists and their progeny" (Mapara, 2017, p. 4). Mwadime (1999) states that the term *indigenous* was coined by Michael Warren and Robert Chambers' groups in 1980. Eze (2013) built upon Maurial's (1999, p. 64) definition that indigenous "reflects ideological connotations and contemporarily connotes plurality instead of otherness" – by suggesting that while the concept was given a label then, it has been in existence since time immemorial. Semali and Kincheloe (1999) remarked that because the term indigenous has been reduced to mean the primitive, the wild, and the natural, IK has also been accorded similar meanings. To millions of the indigenous peoples of Africa, Latin America, Asia, and Oceania, IK is a significant tool that is used to help them exist meaningfully and harmoniously in their environment. To the indigenous communities, IK reflects the dynamic way in which the residents of an area have come to understand themselves in relationship to their natural environment, and how they organise that folk knowledge to the flora and fauna, cultural beliefs, and history to enhance their lives (Semali & Kincheloe, 1999). In a similar study, Mehta, Semali, Fleishman and Marezki (2011), went on to make a suggestion for an indigenous pedagogy where mainstream education and IK are not in contestation, but are working together. This was one assumption this study was premised on.

Another view is that the terms ‘indigenous knowledge’, ‘traditional’, ‘lay beliefs’ and ‘common sense beliefs’, refer to knowledge generated by a people in a societal context, and, commonly, IK is associated with people in non-Western, non-industrialised, and traditional locales (George, 1999). The following excerpt seems to capture succinctly some imperatives undergirding IK:

We conceptualize an ‘indigenous knowledge’ as a body of knowledge associated with the long-term occupancy of a certain place. This knowledge refers to traditional norms and social values, as well as to mental constructs that guide, organize, and regulate the people’s way of lived experience and knowledge of a given social group, and forms the basis of decision making in the faces of challenges both familiar and unfamiliar. (Dei et al., 2000, p. 6)

It is believed to be necessary to extract verbatim Mapara’s (2017) differentiation between *indigenous knowledge* and *indigenous knowledge systems* – so as to avoid losing, in paraphrasing, the conceptual essences that distinguishes the two concepts.



Indigenous knowledge (IK) is a term that is used to refer to the intellectual activities of indigenous societies scattered throughout the world and have almost all been colonialism and intentional extermination. It is also known as indigenous technical science. It is passed down from generation to generation and is not static and fossilised in people’s minds as some would like to think. *Indigenous Knowledge Systems* (IKS) on the other hand is a designation that is used to refer to the modus operandi and processes that the indigenous peoples use to harness the indigenous knowledge. This knowledge is not external but is generated after being informed by the local environment. It can be said to be knowledge that has its roots in the local bio-physical and social environment. (Mapara, 2017, p. 4)

2.2.2 Current Debates on Indigenous Knowledge

There are several current debates in the IKS realm. One of the most topical is the commodification of knowledge by means of intellectual property rights, which raises serious ethical issues. This is particularly so in terms of the use of knowledge that is freely given in one culture but then is commodified for private profit in another (Brush, 2013). This is all compounded by the fact that there is increased pressure for all nation states to implement intellectual property protection and to conform to a common international standard. These trends raise questions about the legal status of indigenous groups and their control over culturally specific but widely useful information, and point to the need to conserve biological resources and indigenous knowledge (Stabinsky & Brush, 2007).

IK seems to have potential as a solution to problems of great magnitude experienced in Southern countries. While advocates of IK, whom Agrawal (1995) termed the *neo-indigenistas*, exalt the utilitarian value of IK – other authors identify some problem areas associated with its fundamental conceptual foundations and processes. Mwadime (1999) offered a noteworthy counsel when it was asserted that it would be a folly and unwise to present indigenous knowledge as being devoid of any shortcomings. IK, he cautioned, is not always correct and functional, and thus must be modified and adapted to be compatible with contemporary practices and social reality. Serrano, cited by George (1999), seemed to suggest that IK must exist in Western settings, if it is to be viable and useful.

The fact that IK is not included in most school curricula, that no school materials are ready to teach it, and that educators are not trained to deal with it in classrooms – should be a concern (George, 1999). Khupe's (2014) study proved the previous claim when it found that teachers do not integrate IK because of a lack of training and resources. Moyo's (2011) conclusion that, owing to a lack of training, in many schools in South Africa, IK and science integration have been largely left to the discretion of teachers. To the researcher this practice is not only applicable to science integration but to other subjects or learning areas integration as well. In addition, Jacobs (2015) found that teachers find that a lack of training and resources are barriers to IK integration. As claimed in Chapter 1, it would

appear that teachers have been given minimum support and/or training – if any at all (Khupe, 2014). It was a subsumed intent of this study to look at the aspect of teacher training in IK integration, as well as an objective of this study to consider support and monitoring in the integration of IK in the school curriculum.

The researcher therefore can infer that the inadequate training and support in the integration of IK and other learning areas/subjects could be why teachers would have to be ingenious and creative if IK was to be hastily implemented, and the cost of producing teaching-learning and teacher training materials might be a financial strain for already impoverished Global South countries.

The answer to particularly question the cost of producing IK teaching-learning material may be found in Dlamini's (2017) chapter, *Use of information and communication technologies tools to capture, store and disseminate indigenous knowledge: A literature review* – in which he comprehensively reviewed the literature on the capturing, storing and dissemination of IK to those who are interested, including schools. He extensively discussed available and cheap digital technologies that could be used to record, manage and disseminate IK materials. It is not only George (1999), Moyo (2011) and Khupe (2014) who were concerned about the challenges that may hinder the implementation of IK in schools. Semali (1999a) also contended that the process of implementing and integrating IK with the dominating school curriculum might be difficult. This study on the integration of IK in the IP school curriculum was premised on the assumption that teachers may experience challenges that may make it difficult to integrate. A question that has some relevance here was: in nation states like South Africa that are affected by political, economic, social, and cultural problems, how would they afford and manage the implementation of IK, especially in schools that are generally under-resourced?

In relation to the concern that IK is either under represented or is still marginalised in education, another major concern among developing countries like South Africa, centres on the perception that formal education continues to be dominated by Eurocentric perspectives and academic orientations that reflect Western scientific cultures – rather

than the local cultures of learners and their teachers (Abah et al., 2015). Consequently, learners underachieve in schools owing to cultural gaps between the expectations of the school curriculum and those of the communities that learners grow up in. Also, the school curriculum does not cater for the ways in which most learners communicate, think and learn. Teachers are also affected. They too experience the effects of the cultural gap. The main issue is the type of knowledge taught in the schools. Currently, the focus is on cross-cultural transfer of knowledge, globalised curricular integration, and appropriate teaching-learning strategies (*Ibid.*). This study was also about the integration of IK in the IP school curriculum that is perceived to be dominated by a Western Eurocentric-orientated knowledge – to establish how far the curriculum is aligned with the IK as per the dictates of the South African curriculum. The debate continues around striking a balance between the two ways of knowing in the school curriculum, although it is accepted that some efforts are being done to establish an interrelationship between IK and Western scientific knowledge in the school curriculum (Abah et al., 2015).

One other challenge that is receiving scrutiny, is the paradigm shift expected from teachers who will have to teach in schools and curricula that are culturally inclusive, while they have been trained to teach in schools with predominantly Eurocentric curricula and school systems (Thaman, 2009; Johannson-Fua, 2006, as cited in Abah, et al., 2015). The paradigm shift for teachers is a challenge – as they are expected to mediate the interface between the different cultural systems of meanings and values that are prevalent in their schools. Thus teachers find themselves in an unclear position, because their professional training expects them to teach a Western-based school curriculum, while their personal identities as well as those of the learners, originate from their own cultural traditions. Teachers would often de-emphasise their values and those of the learners – especially if the values conflict with the values that the school is trying to promote (*Ibid.*) – which are grounded in western culture and traditions. Matike's (2012) study echoed the challenges that would make teachers have difficulties in changing paradigms. The study's respondents indicated that the teachers' poor knowledge and lack of interest in IK would hamper integration. Similarly, Muza (2013) appeared to concur. This is in line with Aldous and Rogan's (2013) view that in South Africa, when the policy-makers created the new

National Curriculum Statements, they neglected the *how* part when it comes to integration of IK. Instead, the policy-makers focused only on the *what* of the desired educational changes. Thus, the authors concluded that teachers, generally, have a poor understanding of how to integrate. Authors like Ogunniyi (1997, 2004) and Jansen and Christies (1999) asserted that teachers are against integration of IK in the science curriculum – particularly because: (i) many teachers in South Africa have been schooled in Western science and hence are more familiar with that worldview than that of IKS; (ii) the new curriculum demands new instructional approaches and goals in terms of contextualisation and indigenisation; and (iii) the lack of clarity on how a science-IKS curriculum could be implemented.

It would appear that it is not only the teachers that experience challenges with IK integration due to policy shortcomings. Districts and provincial authorities show a reluctance to implement IKS because of the absence of guidelines (Mushayikwa & Ogunniyi, 2011). This creates a vicious cycle of exclusion of IKS in the classroom, even though it is contained in the policy frameworks – in the process disadvantaging the indigenous learners. With the limited knowledge on why IK does not find itself in the classroom, learners will consider such knowledge irrelevant and inferior to the extent that it need not be recognised, preserved or valued. This results in extinction of such knowledge across generations – making it difficult for indigenous learners to master concepts as they have to purely rely on ‘foreign’ knowledge systems: knowledge systems that do not relate to what they experience at home and in their communities.

In Matike’s (2012) study, the teacher-respondents suggested what could facilitate the teachers’ paradigm shift in the context of absent guidelines for IKS integration: workshops would have to be organised to educate school teachers about IKS. Teachers would have to undergo training in relation to the teaching of IK, and the Department of Education should make teaching materials relating to IK available so that the teaching of IKS in schools could be realised (*Ibid.*).

Furthermore, in relation to the challenge of a paradigm shift experienced by teachers, Mothwa (2011) asserted that many teachers in South Africa were trained in the old

method of teaching and not in the pedagogy prescribed by the new South African curriculum. The teachers have no specific knowledge of the IK they have to teach because they teach classes with learners that come from diverse cultural groups that have diverse local indigenous knowledges. Those that have sufficient knowledge of IKS often lack in pedagogy. Mothwa highlights that teachers simply ignore IK because they do not have the requisite pedagogical knowledge. Teachers do not have the appropriate Pedagogical Content Knowledge (PCK) – which is the knowledge about methods and strategies to integrate IK.

The notion of PCK was introduced by Shulman in 1985, in America. America had found that there was a poor correlation between learners' needs, teaching methodology and the content to be taught (Shulman, 1986). PCK include aspects like knowledge about learning and learners, the principles of teaching, classroom management, and the aims and purpose of education (Mothwa, 2011). One should reiterate that the PCK should directly address the question of IK integration and be tailor-made for IK integration. Moreover, textbooks have little or no proper information about IK. IK is given as examples, and there are hardly any teaching strategies suggested and no practical work that can be done in the classroom for the sciences. In line with this contention, Diwu and Ogunniyi (2011) asserted that IK is not documented, and is not readily available to teachers. Moreover, many teachers believe that some textbooks are not helpful to indigenous learners because (Lubben, 2011) they contain only a few cultural activities that are mainly case studies. The textbooks thus have very little material to support the teachers (Diwu & Ogunniyi, 2011).

Furthermore, it is implied that although IK's traditional methods of inquiry might add value to the existing research approach, they might not be able to produce knowledge that is general and reproducible or that can advance disciplinary knowledge (Abdullah & Stringer, 1999). This concern however appears somehow misplaced. Research on IKS that advances disciplinary knowledge abounds. To support the researcher's stance: in section 2.3.6, the *Handbook of research on theoretical perspectives on indigenous knowledge systems in developing countries* (edited by Ngulube, 2017) and Tuck and McKenzie (2015), provides a strong case for the importance IK in academia and for

schools to advance knowledge. Additionally, the book, *African indigenous knowledge systems and sustainable development: Challenges and prospects* (edited by Smit and Masoga, 2012), is a compilation of chapters based on research conducted at *The IKS Centre of Excellence*, Mahikeng campus, North-West University, South Africa.

A further area of debate around IK has been around the role played by universities in the IKS agenda (Balcomb, 2001). There are doubts whether enough is done by universities in South Africa to push the IKS agenda – despite the demise of colonialism and apartheid and the many efforts taken by the government to position IK on the plans of universities, which are the knowledge-producing sector. The situation seemed to be similar across the border from South Africa, with Mapara (2017) remarking on the IKS project in Zimbabwe’s universities – that research at universities emphasised and sought to confirm and validate Western knowledge and not IK. The government of Zimbabwe inadequately funds IK research in its institutions of higher learning; private universities promote the interests of their funders, which have no interest in IKS research (*Ibid.*). Returning to the South African experience, Ngulube, Dube and Mhlongo (2015) concluded (based on the results of their quantitative study mapping the inclusion of IKS content in the higher education curriculum of universities that offer library and information science education) that the pedagogic practices emanating from the colonial era, and which undervalue IK, continue to dominate the higher education landscape and exclude IK in the process. The Human Sciences Research Council launched an Institute for Indigenous Theory and Practice; the National Research Foundation has funded research on IKS with substantial amounts of money and has made IK as one of its niche areas; and the Portfolio Committee on Arts, Culture, Language, Science and Technology in 2000 launched an IKS programme that intended to mainstream IK into institutions, including those of higher learning (*Ibid.*).

Despite all the above efforts, doubts persist as to whether the universities play a meaningful role. In relation to this study, there are doubts about whether universities contribute to the training of prospective teachers to acquire the necessary knowledge and skills in IK teaching. For universities to be seen to contribute to the IKS agenda, Msila’s (2016b) assertions could be actioned. Msila suggested that South Africa’s university

education departments need to produce new teachers that are open to new ways and philosophies. To truly Africanise schools, the teacher education curriculum should be embedded in an IKS-biased institutional culture, and education faculties should engage with in-service and pre-service teachers – where they foster a deliberative culture on African philosophies linked to IKS. Doing this would empower teachers to start eliminating and unshackling the intellectual restrictions imposed by Calvinistic Bantu apartheid education and colonialism – through which school knowledge was distorted to ensure limitation of the intellect of learners and teachers. The Calvinistic Christianising mission of apartheid education, which was meant to ‘civilise’, led to the exclusion of IKS-linked African philosophies in the educational curriculum (*Ibid.*). With colonialism thrown into the mix, for centuries Africa has been “invisible; almost a pariah in Western formal education” (Msila, 2016a, p. 59).

It is not apartheid alone that marginalised IKS in education; colonialism, in general, resulted in the colonial subjugation of IKS in Africa in all aspects of life of the indigenous people, including education (Higgs & van Wyk, 2007). In a similar vein, Ngara (2017) asserted that the Western knowledge paradigm rendered many indigenous knowledge systems invalid, illegitimate and irrelevant, and IKS generally and particularly indigenous medical knowledge systems, struggled to articulate their voices from the marginalisation imposed by colonialism, globalisation and modernity. In agreement, Oroma and Ali (2018, p. 36), averred that “traditional wisdom”/IK has been ignored by the Western former colonialist. The fact that the time is long overdue for African traditional knowledge or IK to be recognised in schools (Msila, 2016a), has been one of the assumptions this study was based on; thus universities must contribute to the IKS project through renewal of the curriculum of training teachers. It is reasonable to conclude that apartheid baggage from the segregatory policies of South Africa has had an adverse impact on IKS in the school curriculum (Khupe, 2014), and, as noted, on the curriculum of universities.

Related to the arguments above, Heleta (2016) provided a generic picture of the status quo with regard to the curriculum in South African universities. He asserted that South African universities continue to focus on a curriculum that remains largely Eurocentric and

which continues to reinforce white and Western dominance and privilege. It is full of stereotypes, prejudices and patronising views about Africa and its people. Heleta's (2016, p. 2) contention stressed that "South Africa must completely rethink, reframe and reconstruct the Eurocentric and colonial curriculum and teaching methods at universities." One can opine that one way of achieving this rethinking, reframing and reconstruction of the colonial curriculum – is for universities to contribute to the IK agenda by training teachers, and by deliberately and consciously overhauling their curriculum to include IK. In the same vein, Jacobs (2015) recommended that

universities in South Africa should redesign their courses/modules in the undergraduate as well as post graduate teaching courses to include IKS. Universities should not only equip prospective teachers with IK, but also how to translate this knowledge into effective practice. Therefore, in the pre-service teachers' course practical approaches to teach IK should be built into the course. The universities should change their teacher education program so that the pre-service teachers are provided with experience in how to integrate IKS and science. (Jacobs, 2015, p. 197)



Furthermore, faculties of universities are experiencing a challenge of showing students the importance of IKS – as well as the African experience in general (Msila, 2016b). That said, there is a noticeable and noteworthy drive, although modest, to recruit more indigenous language primary school pre-service teachers. As postulated by Michie (1999), the best site to teach IK is in primary schools, which tend to have integrated curricula. Additionally, it is encouraging that studies like that of Jacobs (2015) revealed there is an indication that higher education institutions are making an effort to include IKS in their curriculum, in order to teach to their students. When learners see their languages being used at schools, their often negative perception of their culture would gradually change to become positive. As suggested in this chapter (see section 2.3.6), indigenous languages are significant as they constitute a vital position in African culture and IK in general, because, *inter alia*, language can address issues of social justice and equity (*Ibid.*). The importance of an indigenous language is further demonstrated in Khupe's

(2014) study, which was conducted in Mqatsheni Village, KwaZulu-Natal Province, South Africa. She stated that “IsiZulu [language of the Zulu nation] is the key factor that runs through all knowledge in Mqatsheni, and it is through isiZulu that the knowledge was shared during this study.”

The drive to recruit more indigenous language primary school pre-service teachers was of interest to this study, as the participants and respondents in this study were to be sampled from the IP which constitutes a phase in the primary school in South Africa. The researcher was anticipating that the teachers, HoDs and Subject Advisors might reveal more on the role of indigenous languages in the integration of IK in the IP school curriculum.

The other area of contention is the perceived tensions, conflicts and synergies between the contrasting narratives of Western Eurocentric science knowledge and the values, practices, customs and processes of IK in the realm of the school curriculum (Balcomb, 2001). On the other hand, Khupe (2014) noted that the modernist language versus that of IK, is bound to lead to conflict and tensions. Similarly, the values and worldview of IK and those of the culture of Western science knowledge clash (Webb, 2016) – making it a potential challenge to merge IK in the Western knowledge-dominated curriculum. Similarly, Msuya (2007) remarked that formal education introduced by the colonialist and Christian religion, including Islam, are also factors that impact on IKS; IKS has been adversely affected by disinformation strategies embedded in Western-centric, colonial and post-colonial education, and Western religion, science and technology. Regarding religion, Mothwa (2011) remarked that teachers with fundamentalist religious beliefs may negatively influence IK integration in the classroom. She found that most participants were bound by their beliefs that made them reluctant to involve themselves with IK – and thus they become negative about infusing their teaching with IK. Believers find some aspects of IK offensive, like Christians finding traditional healing offensive. This research could add that traditional practices like *ulwaluko* (traditional rite of passage to manhood) become problematic at many schools in the Eastern Cape Province, South Africa, when school boys come back from initiation schools circumcised and regard themselves as

amadoda (men) and expect to be treated as such. Written and anecdotal evidence reflects serious clashes and tensions in school communities: circumcised boys pitted against the uncircumcised ones; teachers against the behaviour of the circumcised boys, and so forth. These tensions are the manifestation of an indigenous practice clashing with a Western-orientated value system in a formal education system. It should be noted, however, that South Africa has a policy that contains prescripts that govern religion (South Africa. Department of Education [DBE], 2003). The policy calls for respect of every religion and the views of others. This prescript is also enshrined in the Constitution of South Africa and the South African Schools Act (1996). Therefore, it would affect temperance if one value-system is seen to be subjugating the values of another. The value-system of Christian-teachers are protected and thus it would be reasonable to opine that they need not fear IK.

Furthermore, Msuya (2007) revealed that the younger generation that are exposed to Western education are less interested in IK, as they perceive it to be outdated and primitive. This attitude may be the result of disinformation strategies (Msuya, 2007). Barnhardt (2010) explained that the cause of the tensions and challenges of indigenous people, is that indigenous people live in two worlds: “one a locally-derived Native world, and the other being the externally-defined world” (Barnhardt, 2010, p. 113). The indigenous people in Alaska continue with strategies to reconcile the tensions and conflicts, by instituting strategies that have a potential to integrate the best of the two worlds (*Ibid.*). On the conflicts/tensions between IK and Western knowledge, Mapara (2017) stated that in Zimbabwe particularly, and in Africa generally, Africans have no faith in themselves as the West has entrenched Western ways and “ruinous culture” in Africans that is detrimental to their self-esteem “and a belief in what indigenous cultures and technologies can contribute to the development of local communities” (p. 3). Education in Zimbabwe encourages the valuing and appreciation of Western heritage instead of Zimbabwe’s heritage. As an illustration, Mapara cites that school quizzes focus on Western knowledge rather than IK and cultures (*Ibid.*). The Zimbabwe situation could be likened to the South African scenario, as noted earlier, where textbooks that are available have attempted to include IKS – but had few cultural activities and mainly had case

studies (Lubben, 2011). The textbooks were designed for a national market and do not accommodate the diversity of environments in the South African context – leaving teachers with very little material to support them (*Ibid.*).

Reasonable inference could be made with regard to the dichotomous curriculum noted earlier, where learners and teachers find themselves torn between Barnhardt's (2010) 'two-worlds'. The scenario painted by Mapara (2017) could easily have been referring to South Africa with regard to the conflict between IK/local knowledge versus western knowledge. The following paragraph is a practical illustration of the clash between the 'two-worlds'. The two-worlds, whereby one is represented by Western culture and the other by indigenous culture, would be viewed by Western thought as binary oppositions the other viewed as civilised (Western-oriented world) in opposition to the other that would be perceived primitive (Indigenous-oriented world) (Ashcroft, Griffiths & Tiffin (2008a). The view resonates with the way Battiste (2002) described IK as the binary opposite of western knowledge (see section 2.3.1).



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In South Africa, the conflict and tensions between the two forms of knowledge, the two-worlds, was practically demonstrated when school girls – during a school music eisteddfod in an Eastern Cape Province city in South Africa – took off their *umbhaco*, a Xhosa traditional blanket, and rendered a song in an African attire, *inkciyo*. Modernists, who viewed the attire from a Western mind set, deemed it unsuitable and inappropriate – as it was too revealing for them, and clashed with the traditionalists that adhered and respected the IK way of doing things. The choir master was adamant that they were interpreting a traditional song and that they were proud of their Xhosa (a South African nation) traditions – while the Premier of the Eastern Cape Province ordered the Member of the Executive in charge of the ECDoE to investigate the wearing of *inkciyo*. A Member of Parliament expressed a similar view to that of the choir – by stating that more Africans should embrace their culture and fight against discrimination, and that there was nothing wrong with what the school girls did, as the attire was part of their custom. The AmaXhosa King, including several Eastern Cape royals and also the Congress of Traditional Leaders of South Africa, castigated those who criticised the school and the girls (George & Ford,

2018; Feni, 2018a). The whole episode made news headlines, and degenerated into controversy – so show-casing the conflicts and tensions that exist between the worldview of IK and Western Eurocentric modern knowledge. It was hoped that the current study would in a way provide answers to how these challenges could be addressed in schools and authentic classroom situations, through the integration of IK.

Another concern about IK pertains to how it is to be collected, documented, preserved, disseminated – and who will control these activities. Mwadime (1999) postulated that there is no clarity on how IK is to be recorded and utilised in policy, planning and programming. One could say that the situation is not so dire. Part of the resolution to this challenge may lie in the numerous cheap and available ways of capturing, managing and disseminating IK resources to those who are interested in IK and schools that are interested in IK would be included (Dlamini, 2017). In addition, Oroma and Ali's (2018) study, *Examining the Use of Information Systems to Preserve Indigenous Knowledge in Uganda: A Case from Muni University*, addressed this issue of recording or documentation of IKS. Likewise, Seitatolo and Matike's (2012) study, *The Role of Information Communication Technology in Promoting Indigenous Knowledge Systems for Rural Development*, which was conducted in Dibate Village, near Mafikeng, North West Province, South Africa – demonstrated the importance of Information and Communication Technologies in the promotion of IKS for rural development. Mwadime (1999) raised awareness of the fact that IK might not be beneficial to the economically and politically underprivileged – especially when presented as a specialisation discursive practice dominated by those already entrenched in educational and political hegemonic positions. While Mwadime is concerned about whether IK would be beneficial to local indigenous people, Oroma and Ali (2018) and Palamuleni, Kaya and Koitsiwe's (2012) found that local indigenous people believe that IK would lead to educational and socio-economic empowerment, which, consequently, would improve the lives of local communities.

Furthermore, Mwadime (1999) claimed that IK might be less effective for long-term planning due to its vulnerability to change, and its advocates and their related institutions might have to contend with a powerful lobby of more financially strong institutions,

bilateral agencies, and international transnational companies. Reynar (1999) claimed that IK might only be beneficial for development if it is regarded as useful for the markets. Reynar (*Ibid.*) proceeded to claim that IK, to an extent, has been isolated from market forces, and exposure to these forces might prelude its demise, and indigenous peoples might be short-changed because financial compensation for knowledge among indigenous cultures is incompatible with their belief systems. The researcher believes that this factor might have serious repercussions for IK, indigenous communities in general, and education in particular. The communities might be denied the opportunity to gain financially from knowledge they have generated, and IK might be vulnerable and susceptible to exploitation and subsequent destruction. Schools may focus on Western knowledge/school knowledge instead of putting IK centre stage – relegating it to a secondary position or total marginalisation. In this study on the integration of IK into the school in the IP school curriculum in a selected Education District in the Eastern Cape, the overt and covert subsumed assumption was to establish the extent of valuing and re-validating IK – through the integration of IK into the IP school curriculum.



Moreover, in relation to the debate on the minimal documentation on IK, Khupe (2014, p. 62) referred to “the current environment [in South Africa] where there is little documentation of IK...”. Kenalemang and Kaya (2012), in their study conducted on the Batswana indigenous natural disaster management systems in the North-West Province, South Africa, to demonstrate the rich knowledge which African indigenous communities have in natural disaster management – noted that much of the rich IK of this particular indigenous knowledge is not documented, and thus it is increasing the possibilities of being lost to the “dot com” generation (Oroma & Ali, 2018, p. 36) when the older generations who are the custodians of this knowledge die. Echoing similar sentiments, Oroma and Ali (2018) asserted that the major challenges of IK are inadequate documentation and diminishing channels to disseminate it. In the same vein, respondents in Matike’s (2012) study revealed that lack of IK resources and absence of teaching materials due to the undocumented nature of IKS, are challenges for the integration of IK into the curriculum. Additionally, Jacobs (2015) made a similar finding to Matike (*Op.cit.*) – that teachers experience the lack of IK resources as a challenge to integration. Relating

to this claim, Oroma and Ali (2018) found that participants regard lack of information about IK as a significant challenge. This was so because oral tradition was usually the sole method for preserving and disseminating IK in many local indigenous communities. Oroma and Ali (2018, p. 38), like Dlamini (2017) cited in previous paragraphs, argue that IK can be protected and disseminated using information systems, and that these technologies should be carefully utilised to complement the traditional ways of preserving IK which revolve around “oral tradition” and/or storytelling.

At this point, it would be appropriate to present unanswered concerns posed by authors like Shiva (2000) and Kawell (2002) related to the epistemology and practices of indigenous knowledge: Who will decide what counts as knowledge? Who will count as being an expert or innovator in terms of indigenous knowledge? Who will have the right to control the circulation of knowledge, and who will have the right to benefit from it? Dei et al. (2000, p. 6) asked similar pertinent questions:

How do we make sense of cognitive processes/categories of local people? How do we deal with questions of access, control, and ownership of knowledge? How do we protect local knowledge from systematization and commodification, and from being swallowed up by corporate material interests? How do we preserve indigenous knowledge ...?

It would appear reasonable to claim that for IK to occupy a meaningful position as a vibrant field of study in education generally, and as a possible instrument to alleviate the hardships of the poor and downtrodden – the preceding concerns should be seriously interrogated for possible solutions. With all these shortcomings and concerns, is it possible that IK could offer respite to extraordinary hardships experienced by marginalised communities in South countries? The following section attempts to give a response.

2.2.3 Indigenous Knowledge Systems – A Critical Analysis

This section expands and builds on reviewed literature in the researcher's paper entitled *Indigenous Knowledge: A Critical Analysis*, which was subsequently published as *Surveying Indigenous Knowledge, the Curriculum, and Development in Africa: A Critical African Viewpoint* (Mkosi, 2005). This section also provides a conceptual analytical discursive narrative on the conceptions and definitions of IK and IKS – to pin down and eventually come up with a working definition of IK and IKS. It is necessary to declare here, again, that in this study the concepts IKS and IK will be used interchangeably. A brief historical context and background of and reasons for the evolvement of IK to prominence, to currently being a subject of heightened interest in academia and education is provided. Furthermore, a critical discussion on debates, conversations and discourses focusing on the critique of IKS is offered. Arguments and debates regarding the significance and implications that IKS have for developmental projects in general and education, are examined with the aim of elucidating and strengthening the central argument of the thesis – that the integration of IK in the school curriculum may have positive impacts.



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2.2.4 Origins and the Rise of Indigenous Knowledge: A Brief Historical Context

Semali and Kincheloe (1999) maintained that since the 1990s, IK has been catapulted into the limelight, becoming the focus of several academic formations. Organisations such as the Inter-Institutional Consortium for Indigenous Knowledge, domiciled at the Pennsylvania State University and founded in 1995, have been interrogating the construct. The Inter-Institutional Consortium was one Indigenous Knowledge Centre that served as a local exchange point. However, centres that served the global community included the Intentional Centre for Indigenous Knowledge for Agriculture and Rural Development, which is situated at Iowa State University, and two Netherlands Centres. Conferences have been held debating several issues pertaining to IK, including epistemological and practical questions related to discursive practice, and how IK is valued and used. In short, a field of study thus emerged with its own publication, *The Indigenous Knowledge and Development Monitor (Ibid.)*.

Ashcroft et al. (2008c) suggest that it was at the end of the twentieth century that debates about the traditional and sacred beliefs of the colonised, indigenous and marginalised people became evident – because matters like land rights and rights to traditional ways of living became more pronounced. The traditional and sacred knowledge joined the other “denied knowledge” and entered the realm of the dominant discourse (Bhabha, 1994, cited in Ashcroft et al., 2008c, p. 7) in the space of the so-called “scientific/objective knowledge” (Ashcroft et al., 2008d, p. 93).

It seemed appropriate at this juncture that a comparison be made between IK and Western knowledge to facilitate better conceptualisation, and in the process, identify epistemological underpinnings of IK.

2.2.5 Establishing a Relationship between Indigenous Knowledge and Western Knowledge



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The timeframe for knowledge to qualify as ‘indigenous’, in the African context, is if the knowledge existed in pre-colonial times (Hewson & Ogunniyi, 2011). It should be borne in mind that Western colonial settlers brought their own knowledge, which in some cases could be described as ‘indigenous’. Western modern knowledge and values that were introduced to indigenous communities through colonialism are a product of industrial capitalism, whose growth systematically suppressed and displaced traditional values and knowledge outwards from the source regions – through processes of imposition and adoption (*Ibid.*). This sentiment echoes, to an extent, Beane’s (1995) arguments that were noted earlier in discussion of his *Curriculum integration and the disciplines of knowledge* theory. This study on the integration of IKS in the IP school curriculum shared this assumption. Moreover, the researcher shared Maurial’s (1999) view that constructing a bipolar model of IK versus Western knowledge is instrumental to understanding IK. The author claimed that IK differs from Western knowledge in that it is not found in archives or laboratories, but forms part of everyday peoples’ lives. Sillitoe (2000, p. 2) seemed to echo the preceding claim, when he asserted that IK is not found in a “grand repository”.

George (1999) expressed the idea that IK is distinct from school knowledge in that it is not produced by following certain prescriptive rules or procedures, but is generated by people when attempting to find solutions for day-to-day problematic scenarios. IK is not found in school curricula, except rarely, and the space of knowledge in the curricula is occupied and reserved for academic knowledge. IK belongs to the pre-scientific class of knowledge; this class of knowledge is not transmitted through formal study. It is experiential, holistic and community-based, and is traditionally transmitted (Kibirige & van Rooyen, 2007; Ogunniyi, 2013). The latter characteristic of IK, that it is orally transmitted from preceding generations (Castellano, 2000; Sillitoe, 2000), emerged consistently when IK is juxtaposed against Western Knowledge that enjoys prominence in school curricula – including the South African school curricula.

Kibirige and van Rooyen (2007) and Ogunniyi (2013) characterise IK as holistic, and this was shared by other authors. For example, Apfell-Maglin cited by Prakash (1999), and seemingly supported by Quiroz (1999), observed that in IKS, the people and their environment are not separate entities, and IK is holistic and connected to nature. In addition, Moshia (1999) claimed that indigenous people experience life holistically and this appears to concur with the previous assertions. For this study, the characteristic of IK being holistic might prove a problem when it is supposed to be integrated in the IP school curriculum. The challenge may lie in deciding what aspects of IK to integrate and include in the curriculum, and which to exclude.

Indigenous knowledge is “idiographic”, i.e. it is a knowledge of substantive content, while Western knowledge is “nomothetic” and is constituted by generalised kinds of knowledge (Nagel cited by Parrish, 1999, p. 269). Jegede (1999) indicated that it is thought that Western scientific knowledge promotes rational thought and the converse, therefore, is true regarding IK. He perceives (1999, p. 125) the following tabulated illustration to be a summary of what he describes as the African thought system, in opposition to the Western World view:

Table 2.1: African thought system versus Western world view

African	Western
Anthropomorphic	Mechanistic
Monistic-Metaphysical	Seeks empirical laws and principles
Cosmology – with religion as an important focus	Public property
Orality predominates	Documented
Sage practice	Truth can be challenged
Learning is communal	Learning is an individual enterprise

(Adopted from Jegede, 1999, p. 125).

Shiva (2000) argued that IK has been defined as being unscientific because the epistemological foundations of Western knowledge were imposed on indigenous knowledge systems. Taking the argument further, Ogunniyi (2011, p. 102) stated that IK embraces both testable and non-testable metaphysical phenomena, while “Science [generally associated with Western knowledge] is concerned with testable phenomena”, and it considers the universe as knowable (Webb, 2014). To integrate such distinct knowledge in the science curriculum may pose serious challenges (*Ibid.*), but not necessarily for all subjects/learning areas of the curricula. The nature of science and how it is demarcated may be an impediment to integrating IKS and science (Webb, 2014).

As claims of a dichotomous relationship between IK and Western knowledge abound; similarities are also identified. Dei (2000) argued that because IK exhibits an attribute of any knowledge, the accumulative nature of knowledge, it can be said to be dynamic like Western knowledge. Also, it possesses moral and cognitive conceptions about the environment and societal structures. This makes it compatible with Western scientific knowledge (*Ibid.*). Webb (2016) emphasised that processes of Western sciences and IK follow similar patterns. Agrawal (1995) alleged that like any other knowledge, Western knowledge cannot be divorced from the day-to-day existence of people, as is the case

with IK. Both the commonalities and differences could be positives when IK is integrated into the school curriculum. Integration may lead to enrichment of subject content and may enhance and increase the repertoire of ways of teaching, learning and assessment – as subject matter would be approached from different trajectories (Webb, 2014).

2.2.6 Significance and Implications of Indigenous Knowledge for the Curriculum and Education

IK appears to be a thread that permeates all spheres of human endeavour, including education generally, and the curriculum in particular. Semali and Kincheloe (1999) emphasised the potential IK has for a multiplicity of societal aspects in variegated establishments. This claim resonates with Oroma and Ali (2018) who found that participants cited a number of aspects in which IK could be beneficial – like the socio-economic empowerment of the local community through commercialisation of cultural tourism, socialisation, management and control of communities and their resources, and alternative sources of knowledge. Moreover, IK could be beneficial for the preservation of culture, enhancing craftsmanship, and introducing creative methods' activities such as farming, fishing and house construction. Summarising, Oroma and Ali (2018, p. 36), asserted that IK is “highly useful in solving complex problems in health, agriculture, education, use of natural resources and the environment”. To add, George (1999) notes that IK could play a worthwhile role in environmental management, and might sensitise the exploiters of natural resources in Southern countries to the destruction and possible depletion of the environment. Furthermore, IK could educate the modernist and the exploiters of natural resources on how the environment is respected, honoured and valued by indigenous people. To illustrate this, Masoga and Kaya's (2012) chapter, *African Indigenous Ecology Control and Sustainable Community Livelihood in Southern African History*, explores the IK ways of managing the ecosystem/environment. Similarly, Ayaa and Kipterer (2018, p. 102) indicated how natural resources in the environment were managed by the indigenous people of the Teso community in Kenya – before the arrival “of the Missionaries, scientific discoveries, influence from foreign religions, modern education and industrialization”.

It is not only in environmental management and ecology that IK has been shown to have potential – as Shiva (2000) demonstrated. Shiva examined the potential of IK in medicine and IK issues in the medical realm, and how these issues impact on local communities. In the same light, Ateba, Kaya, Pitso and Ferim's (2012) participatory research study that focused on Batswana indigenous knowledge of plant species for medicinal and food uses – showed that the Batswana knowledge holders had a rich IK about the plant species diversity of their environment, including community uses of the plant species.

Furthermore, Shiva (2000) provided an eloquent and passionate explication on the significance and economic possibilities IK might have for people in India, if the IKS are managed prudently and justly. The author perceives her views, although grounded in India's context – to be equally applicable to nation states of the poor and marginalised. Wane (2000, pp. 62-63), from a Kenyan context, presents ideas that seem to have some resonance with Shiva's, and concludes that Kenyan women lament the destruction of medicinal flora, owing to "modern farming practices". Dei (2000) stated that incorporating IK bore significant possibilities for social and ecological sustainability. Findings like those made by the Medical Research Council of South Africa on five South African plants that are used as traditional medicine, and which could be used to bring relief to those inflicted with HIV/AIDS – gives credence to arguments in support of IK (Davids, 2003).

Mwadime (1999) seems to see answers in the application of indigenous agricultural systems and traditional food processing methods to the ravages of poverty and hunger that are prevalent in Southern countries. He asserts that locals know best where the best land is for cultivation of different crops and know of areas (not known to Western representatives), where natural resources are available (*Ibid.*). Supporting these preceding claims, Ncube and Lagardien (2015) revealed how local Karoo farmers in South Africa utilised IK for a variety of agricultural systems that include crop farming, livestock and mixed systems, and management of soil moisture and soil fertility. In short, the subsistence farmers have used and developed IK methods in various agricultural systems. It would seem that it is in this vein that Gough (2006) postulated that IK is now

recognised as the only knowledge system that is central to the issues of sustainable and equitable development. The users manage it (IK), and it is holistic. IKS provides the wisdom to manage the environment and environmental ethics, to enhance local and relevant knowledge and skills, in order to sustain environments without jeopardising natural resources (*Ibid.*). Bringing such environmental ethics into the classroom through the integration of IK into the IP school curriculum, may sensitise the learners – who are future custodians of the environment in which they live – to respect and preserve their immediate environment. Moreover, in their agriculture subject, and generally, they could learn IK/local knowledge methods that are cheap and sustainable in order to produce food for local consumption.

Another significant implication IK seems to hold for education and research, is the possibility of enriching these processes. Indigenous methods of enquiry might add a new viable dimension to the dominating Western methods and research tools used (Abdullah & Stringer, 1999). Tuck and McKenzie (2015) in their book, *Place in Research: Theory, Methodology, and Methods*, advance an elaborate case on the importance and need for indigenous inquiry methods in the Western-dominated intellectual research domain. They discuss indigenous methods of research like indigenous story work, mapping place-worlds and place-making, (re)mapping, urban indigenous land-based pedagogies and community-based research design. IK appears to have profound potential, which is the forms of knowledge that could interface with and broaden the powerfully located Western knowledge. The authors in the volume, *Handbook of Research on Theoretical Perspectives on Indigenous Knowledge Systems in Developing Countries* (Ngulube, 2017), illustrated, variously, the importance and use of methods of indigenous research in the school curriculum, education, and in research generally. Mapara (2017), in same volume, adequately captured the sentiment on the importance of IK research, when he stressed that:

It is imperative in this age and day that research into IK be carried out. In fact, it has been a travesty of justice that IK has in the past been viewed as no science at all and has either been relegated to the dust bins of the academic world, or has been treated as myths or superstitions of the indigenous communities. Research into IK

is essential, because IK is fundamental to local decision-making regarding daily activities such as hunting and gathering, fishing, agriculture, water conservation, and human and animal health [including education and schooling]. (p. 9)

Additionally, the implementation of IK might facilitate the elucidation of aspects rendered cloudy to indigenous students due to a one-dimensional and culturally detached curriculum, and such implementation might counteract *epistemicide*, i.e. the “destruction of the knowledge of a given social group” (Krijnik, 1999, p. 187; Tuck & McKenzie, 2015). Mule (1999) and Quiroz (1999) advanced arguments that appear to concur with the preceding one. They claim that the inclusion of IK can make many curricula relevant to students, and might equip them with cultural tools to make sense of the world in which they live. Furthermore, indigenous music education – comprising music history, practice, and repertoire – can also enrich school and university curricula, argues Abrokwa (1999).

Mwadime (1999) added an interesting dimension to the argument pertaining to the possibilities of IK for research, when he contends that urbanised indigenous populations could be the focus of studies to establish what indigenous strategies they use to cope, and how they generate new knowledge or initiatives to address social problems. It might also be a worthwhile activity to enquire about how IK facilitated the survival of indigenous peoples in the diaspora.

One more significant implication IK could have, is for cultural re-valuing (to borrow from Semali (1999b) among indigenous peoples. It seemed to be an accepted notion that the introduction of the now hegemonic Western knowledge through various historical and economic processes like colonisation and globalisation, led to the invalidation and marginalisation of indigenous cultures. It is perceived that the inclusion and revival of indigenes in educational and societal institutions, might have profound effects on the spirituality of the poor. Studies like Oroma and Ali (2018, p. 40) found that participants cited as being important the role of IK in imparting a broader sense of responsibilities, acceptable norms and ethical standards to the younger generation. People might be rescued from the undesirable and undignified socio-cultural conditions they are trapped in. That culture is a crucial feature in the formation of a peoples' common identity is

axiomatic and language, which mirrors culture, “is itself part of a culture” (Mufwene, 2001, p. 25). The language is “central to a people’s definition of themselves” (Ngugi wa Thiong’o, cited by Mule, 1999, p. 235). Thus, IK which is understood to be intimately linked to a people’s culture, might facilitate the spiritual re-birth – the cultural rebirth or reawakening (Bishop, 2008) – of marginalised peoples into proud, self-actualised societies and individuals with positive self-identities. Integration of IK into the IP curriculum could lead to these positive spin-offs for teachers and learners, and school communities in general. In addition, values that are grounded in African humanism (*Ubuntu*) – like patience, respect, sympathy, consideration, and sensitivity to others – may be re-kindled and fostered in learners (Msila, 2016a). These values in the South African context – where, currently, rampant social ills like gender-based violence, rape, and violence in schools prevail – could be taught in schools through IK integration. From these values emanate practices and behaviour characterised by compassion, kindness, altruism and respect that are central to effective teaching and learning. The importance of IK-derived values was clearly illustrated by statements made by the AmaXhosa King at an *umgidi* [a Xhosa traditional ceremony]. To paraphrase the King: young men should show patriotism by fighting social ills like rape. They should protect women, children and the frail, because these are values that are compatible with Africanism (Feni, 2018b). In any event, these values are universal and, by logical extension, they also underpin Western knowledge (Mbigi, 1997; Msila, 2016a).

It is not only IK values that schools could benefit from. It is also reassuring to note authors like Weibesiek, Letsekha, Meyiwa, and Feni (2013) asserting that local knowledge/IK that is valued by all, is beginning to be incorporated into classroom practices. It has been seen to further strengthen relations in and between school communities and community-based stakeholders – to take a more active role and greater responsibility for the development of context-relevant teaching and learning materials. Resonating with this view, Palamuleni et al. (2012) study in North West Province, South Africa – revealed that women, community elders and IK practitioners should promote, support and raise the awareness of communities about IK activities. In Khupe’s (2014) participatory study, the community expressed their desire to be involved in the curriculum, and even suggested what IK to

include in the curriculum. For integration to be successful, however, there must be careful planning and participative collaboration with knowledge holders in communities (*Ibid.*).

The inclusion of IK in the curriculum could lead to the IP school curriculum becoming more relevant to and accessible for the learners, when their cultural beliefs and values are acknowledged – like with the Maori experience in New Zealand (Webb, 2016). The relevance of the curriculum for the learners in the IP may be enhanced if their indigenous languages are used to teach the subjects, as is the case with the Maori (*Ibid.*). In the case of South Africa, from Matike's (2012) study, one could infer that the following could benefit teaching and learning if integration of IK were to occur:

- IKS makes learning easier and more interesting.
- The teaching of IKS comprises the use of outdoor activities, which will require the participation of learners and will make learning a participatory process.
- IKS provides practical experiments, which make learning about African culture more understandable.
- Teaching and learning will become participatory and interesting.
- Learners will be free to express themselves and share their IK with classmates.
- IKS will facilitate the teaching of subjects like Life Skills and Arts and Culture.
- IKS will act as a vehicle that enables educators to plan together, in order to achieve the outcomes expected of learners;
- IKS will address the holistic nature of the school curriculum.
- Learners will acquire the necessary skills and knowledge required of them, when they graduate from school (pp. 178-179).

Based on the above, it is evident that the integration of IK into the school curriculum would be beneficial to both teachers and learners. It would enhance classroom teaching and learning processes (Matike, 2012).

Moreover, not only would the integration of IK in the school curriculum have cognitive spin-offs for learners, IK could lead to learners' physical development and provide extra-

curricular activities that form an important part of any education system. Indigenous games, which are part of the local IK, would be preserved. To illustrate this point: school indigenous games' competitions are organised around the Provinces in South Africa. The games include indigenous games like *iintonga*, *mrabaraba*, *jukskei*, *dibeke*, *kho-kho*, and *ncuva* (Piliso, 2018). This resonated with Palamuleni et al. (2012, p. 136) study, which revealed through interviews, focus-group discussions and observations, that the youth in the North West Province, South Africa, utilise IK through indigenous games such as “*Morabaraba, Dibeke, Khokho, ugqophu [sic] and Khati*”. These indigenous games not only keep the learners and youth physically fit and healthy, they revive and preserve indigenous games, so keeping the learners and youth away from social ills and teaching positive values (Piliso, 2018). Furthermore, the introduction of indigenous games and sports to learners would further assist in processes to integrate IK, and thus must be made compulsory at school (Matike, 2012).

Palamuleni et al.'s (2012, pp. 139-140) findings resonated with many of the benefits of IK for the curriculum discussed in previous paragraphs. The study revealed that the incorporation of African IKS and its practitioners as custodians of IKS, into the formal educational curriculum, would have the following advantages in terms of transforming the current formal educational and knowledge production system in South Africa, particularly, and in Africa, generally:

- IK practitioners brought into the classroom could help to produce an African human capital, with sensitive and caring values and attitudes.
- IK held by the IKS practitioners as farmers, traditional healers, herbalists, midwives, rain-makers, and so forth – and stored in various forms which include traditional customs, folk stories, folk songs, folk dramas, legends, proverbs, and myths – could be used through the IK practitioners, as resources in the formal educational curriculum, and could be very effective in making IK ‘alive’ for the learners. Learners, who are already familiar with some aspects of indigenous culture, may find it interesting to learn more about it through these various cultural forms and through the community knowledge holders (Palamuleni et al., 2012). As Mothwa (2011) notes,

teachers would realise the importance of building new knowledge on the learners' existing IK knowledge. Furthermore, according to Palamuleni et al. (2012), a new educational paradigm could be promoted, whereby the learners themselves could be actively involved in collecting folk stories, folk songs, legends, proverbs, and so on – that are then retold in their community.

- By the integration of IKS into the curriculum, IK would be preserved and promoted to preserve and promote indigenous knowledge for the benefit of future generations. With the IKS practitioners in the classroom, learners would be encouraged to learn from their parents, grandparents and other adults in the community – and in the process would learn to appreciate and respect their knowledge. The community, especially the IK practitioners, would get an opportunity to participate in curriculum development and the formal education of their children. Moreover, the integration of IK into the educational curriculum, would lead to universities acting as agencies for the transfer of society's cultural knowledge from one generation to the next.
- The IKS practitioners will provide learners with an opportunity to learn much from fieldwork in the local area. For example, IK practitioners could be invited to schools to teach learners about the basic knowledge of plants and soil types (Palamuleni et al., 2012).

King and Schielman (2004) appeared to echo the contentions of Palamuleni et al. (*Op cit.*) on the importance of IK practitioners' involvement in the formal educational establishment. The authors averred that the community members, parents and elders should be actively involved in IK education – in determining what their young people should learn. Their participation would contribute to enhancing the teaching methods, as some traditional methods of doing things would be incorporated into the curricula of existing subjects. Moreover, the participation of parents would strengthen the link between the community and the school.

IKS in the curriculum could add momentum and value to the re-valuation and validation of IK; re-appropriation of IK; indigenisation of Euro-Western knowledge; inclusivism in the curriculum; production, distribution, and legitimising of African IKS; ways of transmitting

indigenous knowledge; and to integrating indigenous ways of knowing in the curriculum (Denzin & Lincoln, 2008; Kovach, 2010; Chilisa, 2012; Smith, 2012; Castiano & Mkabela, 2013). To summarise, the researcher will expand on and refresh the brief observations and commentaries he presented in his published paper, *Surveying indigenous knowledge, the curriculum and development in Africa* (Mkosi, 2005) in terms of various aspects of IKS related to the discussion above.

- It appears what is reflected and not incorporated in the curriculum is symptomatic of the hegemonic struggles pertaining to knowledge, and therefore IK might possibly be affected – positively or negatively – by these power struggles. Thus, an appeal could be made to those who are possessors of intellectual capital and power, and to those in which political power is invested, to acknowledge the prospects of IK. Mpambo's assertion (cited by Wangoola, 2000, p. 275) that now, more than ever before, there has been such an opportunity “to articulate a new synthesis between ... indigenous knowledges and other knowledges” – appears to contain an element of truth. For example, research undertaken in South Africa and globally seems to suggest that synthesising IKS and the Western knowledge-dominated curriculum enriches and enhances learning for indigenous learners (Keane, 2006; Keane, 2008). This study on the integration of IK in the IP school curriculum might contribute, albeit modestly, to this project of a new synthesis between the knowledge types. In any case, as Msila (2016b) postulated “some Western and African notions though cannot always be thought of as mutually exclusive” (p. 62). The coexistence, synergy and importance of the combination of Western and African knowledge are highlighted by Wiredu (2004) and Le Grange (2004). Mapara (2017) echoed these sentiments. In the same light, Moyo, Modiba and Simwa (2015, p. 65) posited that Afrocentrism, which is one of the paradigms this study drew from and which strives for the validation of IK, is “not opposed to Western ways of knowing as it is integrative, that is, it [combines] Western and indigenous theories”. The researcher opines that integration in the IP school must demonstrate what the researcher labels as ‘integrativeness’ – the deliberate, conscious, practical and theoretical blending and mixing of Western knowledge and local IK into teaching and learning. In this vein, the teachers were encouraged to make

reflections on how both Western knowledge and IK could be taught in an integrative way – and not in opposition to Western knowledge.

- Sceptics cite economic factors as possible deterrents and roadblocks to the practical application of IK, as if IK and its inherent potential possibilities are newly discovered phenomena. They seem to postulate that the application of IK will require enormous and extraordinary financial and logistical resources to be effectively implemented – which might not be a true reflection. Most of the resources are already in place, as has been indicated. Kaino (2013) concurred, stating that in various tribes of the world, IK exists that could be meaningfully integrated into western school curricula. Dlamini (2017) has discussed a plethora of cheap and available ways of recording, storing/managing and disseminating IK material or resources for the benefit of communities in general, and schools in particular. The indigenous people themselves and their knowledge, the environment in which they are domiciled – from the deserts to the rainforests of this world – are there to be utilised, structured and ordered in a collaborative effort with the indigenous peoples, and for the benefit of the indigenous people (Mkosi, 2005). As pointed out, globally integration of IKS in school curricula has occurred at a large scale. In South Africa, if resources could be utilised efficiently, effectively and prudently – IKS could be successfully integrated into the school curriculum. Research could be undertaken as to how best resources could be utilised to effect appropriate integration.
- If an argument is grounded on claims that IK belongs to the people, it is generated by the people for their utilisation, and they hoard it, and then it sounds reasonable to conclude that they should be in charge and be a critical feature of any activity (at different levels), associated with IK. Communities from whence local IK emanates should variously benefit (Mapara, 2017). It appears to be an acceptable practice that the originators of knowledge are compensated variously, including controlling all aspects of the knowledge and material rewards, if the circumstance demands (Mkosi, 2005). At the level of curricular development and education, this study, in a way, intends to provide the people [read participants and respondents] with a voice to effect a modest change as to how IK is appropriately used in schools.

- The dualism that seems to exist between excitement and caution regarding IK must be contextualised. The researcher asserts that this knowledge, in terms of its positioning in the realm of and in relation to the present entrenched knowledge, is still verdant ground – there to be explored and interrogated (Mkosi, 2005). This study on the integration of IK in the IP school curriculum aims, to a degree, to position IK at an acceptable level vis-à-vis the entrenched European-Western knowledge in the South African school curriculum.
- However, IK should not be valourised – as if alone it can answer all problems bedevilling indigenous communities. Le Grange (2004) similarly cautions that IKS should be treated cautiously, and unquestioning romanticism of IKS should be avoided. Instead, IKS should be perceived as having potential to be used in concert with a multiplicity of processes – including the democratisation of political spaces affecting the situation of the marginalised – to alleviate the hardships of the underprivileged poor (Mkosi, 2005). Integrated with other knowledge in the curriculum, IKS has the potential to empower learners, the future adult citizens, with a multiplicity of skills and knowledge drawn from IKS to fight socio-economic challenges faced by communities. As pointed out, Keane (2006, 2008), research globally and in South Africa already indicates that the inclusion of IKS into the curriculum enriches and enhances the learning of indigenous learners. Moreover, while the IKS practices may enhance learning and the curriculum – the curriculum may in turn affirm IKS (Keane, 2008).

2.3 PART THREE: PERSPECTIVES ON INTEGRATION OF IKS INTO THE SCHOOL CURRICULUM

Part three discusses the notion of curriculum integration, and elaborates on the very short and condensed global perspective on the integration of IKS into the school curriculum that was given in chapter 1. Additionally, a relatively elaborate discussion on research/scholarly findings and recommendations based on global research on the integration of IK into the school curriculum, is undertaken. Furthermore, a brief politico-historical background on IK in the South African curriculum is given. Lastly, to further link

the literature review with the research questions in chapter one, research findings or scholarly contributions on conceptions of teachers around issues on the integration of IK in the school curriculum, are explored.

2.3.1 The Concept of Curriculum Integration: What Does it Mean?

The concept 'integration' in this study on the integration of IK in the school curriculum in a selected Education District in the Eastern Cape, was central. Integration in the curriculum is not confined to IK only; it happens variously in the curriculum. The ways that integration manifests variously in the curriculum, generally, could be the same ways that could be used to integrate IK where relevant. Therefore, a conceptual-descriptive-discussion on the concept is relevant.

Jacobs (1989), cited in Loepp (1999), defined curriculum integration as an interdisciplinary process in which educators conscientiously apply elements from various disciplines to solve a problem or to discuss a theme. Kain (1993), as cited in Loepp (1999), defined this integrated curriculum as one in which educators enhance or put a twist on discipline-based knowledge, rather than replace it entirely. Kain (*Op cit.*) emphasised that problems in the "real world" are often multidisciplinary in nature, and that the use of several disciplines in education prepares students for engagement in these situations.

2.3.2 Global Perspectives/Findings on the Integration of IKS into the School Curriculum

In many countries today, as noted earlier, formal education continues to be Eurocentric in outlook and academic in orientation – so reflecting Western scientific culture rather than the culture of learners and the teachers (Abah et al., 2015). Several writers have explored the possibility of integrating IKS into the school curriculum. While writing from a curriculum decolonisation perspective, Shizha (2013) outlined the challenges of such

integration arising from the legacies of colonisation that produced an education system mirroring colonial education paradigms.

One challenge was demonstrated by the interface between school and indigenous knowledge of local plants, which is rarely a focus of attention in classrooms (Semali, 1999a). As a result, the transfer of IK from everyday life to schoolwork is not always valued or encouraged, and indigenous ways of knowing may not be recognised by teachers. However, there are exceptional cases where educational institutions have attempted to cross the cultural divide and attempt to integrate IK in the mainstream curriculum. Some of these selected practical examples are outlined below.

Aikenhead (2002) discusses one of several examples where IKS have been integrated into the school curriculum. The author states that the cross-cultural science teaching for years 6–11, in which Western and Aboriginal sciences are integrated, is one such example. This is known as the “Rekindling traditions” project. The primary reason for the integration was to make Western science and engineering accessible to Aboriginal students, in ways that nurture their own cultural identities. That is, so that students are not expected to set aside their culture's view of the material world when they study science at school. Additionally, the curriculum wanted to develop a process for reformulating teaching materials and instruction and assessment methods taken from other places – so that they are culturally sensitive and responsive to an individual community. This process involves people in the community working collaboratively with science teachers. Due to the unique nature of the curriculum, assessment is also tailor-made for the course – to ensure that it captures the knowledge that students absorb from the school environment (*Ibid.*).

A second example was on Malakula Island in the Pacific, where the authorities integrated traditional ecological knowledge (TEK) into formal school curricula to revitalise biocultural diversity. McCarter and Gavin (2011), in their assessment of the integrated system, noted that most of the respondents they interviewed were overwhelmingly in support of the integration of traditional knowledge into the school curriculum, because of the erosion of

cultural knowledge on the island. Specifically, the authors preferred including ethnomedical knowledge, agricultural knowledge and practice, and the reinforcement of respect for traditional authority and values – to form the core of the traditional ecological knowledge. While the authors acknowledged that there were several practical and epistemological barriers to teaching TEK in schools, they believed these were countered by the potential benefits.

An Alaskan study project deals with teachers, schools and communities who participate in camps where they immerse themselves in local IK, and then attempt to apply the knowledge to scenarios representing Western culture; however, what they learn at these camps does not form an integral part of the curriculum (Barnhardt, 2010). This is contrary to the main focus, which is to look at full integration of IK into the IP school curriculum. With the Alaskan experience, indigenous curricular teaching materials are readily available at several websites like <http://ankn.uaf.edu/VS/index.html>, <http://ankn.uaf.edu/handbook/>, and <http://ankn.uaf.edu//AlaskaScience>. Owing to the ready availability of these teaching resources – teachers are more eager to integrate their local IK into the classrooms (Barnhardt, 2010). In South Africa, various information and communication technology tools could be used to record, manage and disseminate IK for classrooms – to mitigate against the usually espoused challenge of shortage of IK resources and also resources that are expensive to produce. Dlamini (2017) in his chapter, *Use of information and communication technologies tools to capture, store and disseminate indigenous knowledge: A literature review*, cited numerous authors¹ that discuss digital technologies which could be used to capture, record and disseminate IK, and that are easily available and appealing to the youth and those that are interested in learning and knowing about different aspects of IK. The digital technologies mentioned include digital and video cameras (mobile phones); tape recorders (for capturing IK); *inter alia* USBs, CD-ROMs, DVDs, and YouTube (for storing IK information); and World Wide

¹ Dlamini's chapter is in the form of a literature review on the storing, capturing and disseminating of IK, and thus it will be impractical to mention the numerous authors he cited.

Web and social media technologies to transmit and disseminate IK to a wider interested audience like teachers and learners (*Ibid.*).

2.3.3 IKS in the South African School Curriculum: A Brief Conceptual Historico-Political Narrative

Generally, the discourse to officially introduce a programme for IKS in South Africa, seems to have emerged in September 1998 at a National Workshop held at the University of the North West (Higgs & van Niekerk, 2002). The main encompassing aim of the programme was formulated with the view to contribute to the African Renaissance as follows:

... to unearth, promote and protect the African heritage – to shine a light on that which has in the past been dismissed and denied. Our country needs to develop an indigenous knowledge system which supports local economic development and enhances its rich cultural, technological, artistic, linguistic and traditional healing heritage. (National Workshop, 1998, p. 4, as quoted by Higgs & van Niekerk, 2002, p. 38)

One objective of the programme was to promote a synergy between the creators of modern knowledge and institutions of traditional/indigenous knowledge systems – to facilitate a dialogue between IKS and western-based systems of knowledge. It was after this National Workshop that the Department of Arts, Culture, Science and Technology was instructed to formulate a draft policy and Bill on the recognition, promotion and protection of IKS in South Africa (Higgs & van Niekerk, 2002).

With particular reference to the South African school curriculum, the pre-1994 South African school curriculum was influenced by the dominant Christian National Education, which allowed the values and knowledge of the dominant, mainly white racial group, to subjugate the values and knowledge systems of other groups (Mudaly & Ismail, 2013).

Post-1994 saw a significant curriculum policy transition to the South African educational policy that significantly originated from the White Paper on Education and Training (South Africa. Department of Education [DoE], 1997), which advocated the incorporation of IKS into the school curriculum. The inclusion of IKS into the school curriculum was further called for in South African policy documents – namely the Revised National Curriculum Statement (RNCS) (South Africa. DoE, 2002), the National Curriculum Statement (South Africa. DoE, 2003), and the Curriculum and Assessment Policy Statement (CAPS) (South Africa. DoE, 2011). These curriculum policies legitimised and affirmed the values and knowledge of all South Africans (Mudaly & Ismail, 2013). The curriculum policies prescribed that teachers integrate IKS in the various school subjects, and not necessarily only in science and mathematics. Supporting the preceding statements, Msila (2016a) remarks that the principles of the National Curriculum Statement are maintained in CAPS, and the principles include valuing of IKS.

The South African Department of Education (2003) and Hewson and Ogunniyi (2011), are among few authors who indicated a time-frame that qualifies knowledge as indigenous. According to the Department of Education (2003), IKS in the South African context refer to a body of knowledge embedded in African philosophical thinking and social practices that has evolved over thousands of years (Department of Education, 2003). On the other hand, some scholars argue that knowledge systems that existed in numerous parts of the non-Western world before the advent of colonialism are referred to as IKS (Hewson & Ogunniyi, 2011). *Òtúlàjà, Cameron and Msimanga (2011)* – in a response to Hewson and Ogunniyi (2011) – argue that efforts to integrate IKS into the South African curriculum are compounded by the underlying tensions associated with aligning IKS with Westernised science in South African classrooms.

The apartheid government took over the education of the Black population in 1951, and created the infamous Bantu Education system that was meant to prepare Blacks for subordinate roles. Therefore, neither mission education nor Bantu education recognised the knowledge of indigenous peoples (Khupe, 2014). When apartheid rule ended in 1994, education became a major target for reform – in order to rid the curriculum of apartheid

content and method and to work toward social justice (Khupe, 2014). The result was a new Outcomes-Based Education (OBE) curriculum, which was effected in 1997. Changes in the new curriculum included the recognition and valuing of IKS as one of the principles of the curriculum, and a shift in focus from subject content to learner-centredness – through a focus on learning outcomes (DOE, 2003).

In the South African National Curriculum Statements (NCS), “valuing Indigenous Knowledge Systems” is one of the principles on which the curriculum is based, and it is justified on the basis of social justice and pedagogy (Department of Education, 2003). In the Curriculum and Assessment Policy Statements (CAPS), there is greater emphasis on the pedagogical side, with integration of IK and science aimed at achieving better learner understanding (Department of Basic Education, 2011). Khupe (2014) echoes similar views. The researcher’s view is that the emphasis is on the integration of IKS and science and not so much on the integration of IKS and other subjects.

The paragraphs that follow discuss issues related to the integration of IK in the curriculum and this is guided by the research questions of this study.

2.3.4 Teachers’ Conceptions of IK

Hewson et al. (2009) interviewed South African science teachers on their perceptions of IKS. The teachers conceptualised IKS in terms of students learning about “inter-dependent relationships” – such as those between humans and natural resources, animals, and plants (Hewson et al., 2009, p. 5). This also involved elements of healthy living such as sexual behaviour, avoidance of drugs, exercise, and hygiene. The teachers also reported that through IKS, students learn about their African heritage. However, teachers in Matike’s (2012) study had a different conception of IKS.

Matike (2012) investigated the knowledge and perceptions of teachers and learners on the incorporation of IKS into the school curriculum. The study involved two high schools, St Mary’s High School and Letsatsing Science High School in Mafikeng, North West

Province, South Africa – and argued for the promotion of IKS for the benefit of future generations. Most respondent teachers from St Mary’s High School (83%) and 50% from Letsatsing conceptualised IKS as a system of knowledge that sought to preserve the culture of people. One could, reasonably, deduce that this is a somehow limited yet workable conception of IK/IKS – considering the plethora and comprehensive definitions and descriptions of IK/IKS discussed in sections 2.3.1 and 2.3.5. It is of interest to note that 3% of respondent teachers from Letsatsing Science High School indicated they had no idea what IKS was all about. The researcher inferred that all of the respondent teachers from St Mary’s High School had some clue of what IKS entailed. Matike’s (*Op cit.*) The Focus Group Discussion (FGD) with teachers, also did not reveal how many teachers from St Mary’s were ignorant about IKS. Matike simply stated that focus-group discussions with the teachers revealed that most teachers had an idea about IKS and their knowledge reflected on their attitude toward the integration of IKS into the school curriculum. However, some authors have argued that teachers show a consistent and inadequate conception or understanding of IKS (Jegade, 1995; Ogawa, 1995; Ogunniyi, Jegede, Ogawa, Yandila, & Oladela, 1995; Aikenhead, 1996).



2.3.5 How do Teachers Integrate IKS into the Curriculum?

The teachers that Hewson et al. (2009) interviewed did not currently integrate IKS into their practice. However, they anticipated the possibility of integration as including information on: (a) the role of Traditional Health Practitioners (THP) in society; and (b) healing practices from South African tribes, Indian Ayurveda, and ancient Afrikaans heritage. They recommended options such as projects on traditional African healing and IKS, or short sessions of videos followed by question-and-answer sessions with THP.

Similarly, teachers in the study of Dziva et al. (2010), in Zimbabwe – an analogous nation to South Africa in many ways – reported that they do not frequently integrate IKS. However, the teachers often use students’ knowledge from home to improve students’ knowledge and learning. These teachers reported that while the beliefs of IKS are important, they are not frequently translated into action.

Using examples in the context of Mozambique, Afonso-Nhalevilo (2013) argued that while there have been some efforts and semblance of success in incorporating IK into the school curriculum, this has not achieved the intended objectives. Afonso-Nhalevilo (*Op cit.*) went on to mention that many strategies in the so-called culturally inclusive science curricula tend to take students along the pathway of cultural assimilation by integrating IKS into modern science topics. As a result, IKS by virtue of being subservient to the mainstream Eurocentric curriculum, ends up serving the goals of the Western-inspired education system.

Among other things, to make integration of IK into the classroom successful, teacher-respondents in Matike's (2012) study that involved the two high schools – St Mary's High and Letsatsing Science High – believed that cultural activities should be organised in schools, so that learners would understand IK better.

Nnadozie (2009), in her qualitative case study that sought to explore the integration of IKS into the teaching of conservation of biodiversity and natural resources by Grade 10 Life Science Educators in the Pinetown District, interviewed and observed two teacher-participants during their lesson presentations – to establish how they integrated IKS. She first interviewed them on *how* they claimed to integrate and observed *what* they actually did in an authentic classroom setting, when they attempted to integrate. Table 2.2 below best illustrates and succinctly presents the *how*, what they claim to be doing when they integrate IKS, and the *what* – what they actually do in the classroom.

TABLE 2.2: What the educators said they do when integrating and what they actually did when integrating in Nnadozie’s study

Participant	Pre-observation interview focused on (How)	Lesson observation focused on (What)
Educator 1	Used IK to build on the scientific concept. Taught the scientific knowledge of conservation of biodiversity and natural resources and afterwards used IK to foster the scientific ideas.	Taught IK of conservation as one of the ways of conserving biodiversity and natural resources. Teaching method did not indicate the interaction of IK and science knowledge, even though IK was mentioned in the lesson.
Educator 2	Used IK as foundation for the lesson. IK was first explored and scientific ideas were taught afterwards. Also used IK to stimulate learners’ interest in the subject. Lastly, used IK to create an interactive forum and increase participation of the learners.	Put IK of different indigenous groups at the centre of the concept of conservation of biodiversity and natural resources, and afterwards taught scientific knowledge.

(Source: Nnadozie, 2009, p. 69)

From Table 2.2 (above) it is clear that the first teacher used IK to further strengthen the scientific knowledge of conservation of biodiversity, and she used a method that showcased IK of conservation as an example of ways to achieve conservation of biodiversity and natural resources. However, the mere mentioning of IK did not translate into an interaction between IK and science knowledge (Nnadozie, 2009). The second teacher based her lesson on the IK of the learners; the teacher used IK as a tool to stimulate learners’ interest in the learning of scientific knowledge, which was to be taught in the next lesson. From this, it can be inferred that there were no attempts to mediate and reconcile IK with science textbook knowledge (*Ibid.*). One may reasonably infer that IK in these lessons was not used on an equal footing with the science knowledge: it was used as a mere example and tool to stimulate interest.

In Mc Knight’s (2015) study, the teacher-participants’ responses suggested they used both learner-centred approaches and teacher-centred approaches when they engaged

with IKS in their classrooms. The teachers did not mention the use of group work, which, for Mc Knight, suggested a teacher-centred approach. A participant stated clearly that she seldom used group work – as she found it time-consuming and noisy. The teacher also did some team teaching (two to three teachers per group per grade), whereby they shared ideas on content that encompasses IKS (*Ibid.*).

Furthermore, participants in Mc Knight's study (2015) suggested that the teacher-participants used a combination of materials and resources – namely, *hard-ware*, *soft-ware* and *ideological ware*. Mc Knight conceived *the hard-ware* to be the white screens for the overhead projector, *the soft-ware* to be transparencies, and the *ideological ware* to be the learning theory which the teacher-participants implemented. The materials and resources mentioned in the lesson plans included videos, computers, DVDs and the chalkboard. The teachers highlighted the lack of resources and shortage of textbooks. According to Mc Knight, the ideological ware he identified was the implementation of the constructivist learning theory – because two of the participants mentioned the learners being a resource, which is in line with the constructivist learning theory involving prior knowledge. Similarly, Khupe's (2014) study showed how – in a constructivist approach – a lesson starts with the learners' prior knowledge, before introducing them to new ideas. This teaching strategy is connected to the teaching principle and teaching method of starting with the known and proceeding to the unknown – as illustrated in Yeşilyurt's (2012) qualitative case study. The general aim of the study was to determine teachers' application levels of common teaching principles, and the problems they encounter. UNESCO (2010) also supported the idea of adopting the philosophy of 'known to the unknown' in education – especially with IK integration in the classroom. This was so, because learners come with knowledge they are familiar with (about the local area), and they could then gradually move to the knowledge about regional, national and global environments. The known prior knowledge, in the studies of Mc Knight (*Op cit.*) and Khupe (*Op cit.*), was the local/IK of learners. As Jacobs (2015, p. 61) asserted: "learners do not come to the classroom with *tabula rasa* [blank slate] minds."

The teachers' responses indicated they used different ways to assess IKS and that they

did assess as suggested by CAPS (Mc Knight, 2015). One teacher indicated that the forms of assessment she utilised included tests and examinations – which speaks to summative and formal assessment. The teacher did not mention any form of formal and informal assessment suggested by the CAPS. However, the other teacher-respondents responded that they do not assess IKS formally; one participant did, however, indicate that some informal assessment was conducted. Two teacher-participants had stated that they do not spend much time on the teaching of IKS, as it was not really tested; that they experienced time constraints in terms of teaching it; and that they have to focus on the science syllabus to be completed (*Ibid.*). Diwu and Ogunniyi's (2011) assertion resonates with the participants' claims on testing. The authors noted that most of the time very little about IKS is assessed in the final examinations – which, in their view, discourages them from attempting to incorporate IKS into their science lessons. When concepts are not assessed, they appear to be trivial and not worth spending time on (*Ibid.*). The researcher opines that assessment by itself is part of teaching, and is not just judging or grading learners.

It appears that Mc Knight (2015) only saw the resources and materials mentioned in the lesson plans; the teaching methods and assessment strategies used were claimed to be used by the participants during interviews. Whether these were used or not in the classroom is uncertain.

With CAPS, as explained by Mc Knight (2015), King and Schielman (2004) had espoused similar sentiments regarding assessment of an integrated curriculum. King and Schielman suggested there should be different ways for assessing, both formal and informal. The authors noted that the inclusion of IK in the formal curriculum should not mean dropping standards. Standards have to be maintained through assessment and evaluation to ensure that quality of education is ensured and to meet the learning needs of students. Thus, in an integrated curriculum, assessment and evaluation should be based on “culturally appropriate standards and criteria as well as on general national standards” (King & Schielman, 2004, p. 49). With regard to the approaches used by teachers to implement IK, King and Schielman (*Op cit.*) only suggest what teachers can do to facilitate

integration. They can use excursions as one strategy, encourage participation in community traditional ceremonies, and encourage the production of artifacts using traditional techniques.

Naidoo and Vithal (2014) argued what approaches could be used to integration. Their study revealed that teachers, given the opportunity to integrate, would engage IKS using three approaches: an *incorporationist approach* that brings selected indigenous knowledge into science by seeking how 'best IKS fits into science'; a *separatist approach* that holds IKS 'side-by-side' with scientific knowledge; and an *integrationist approach* that makes 'connections' between IKS and science. For this study on the integration of IK into the IP school curriculum in a selected Education District in the Eastern Cape Province – it would have been interesting and revealing to observe how teachers' IK integration in the classroom fared when juxtaposed against these different approaches. Naidoo and Vithal's study aimed to establish how the teachers generally integrate IK into the IP school curriculum, and was not concerned by any particular type of approach per se. Interestingly, Jacobs (2015) employed the same three analytical approaches, for purposes of analysis, to explain how the teacher-participants' implemented IKS in their science lessons in the Western Cape Province, South Africa.

Like Nnadozie (2009), the researcher found it difficult to find sources on how teachers in South Africa *actually* integrate IK in authentic classroom situations. There appears to be a dearth of literature on what the teachers should do to successfully integrate IK into formal schooling. The body of literature is mainly on the need to and values of integration – and how integration might be achieved if teachers are given the opportunity (Nnadozie, 2009; Naidoo & Vithal, 2014).

2.3.6 Views of Teachers on Issues of Integration of IK in the School Curriculum

Teachers in the study by Hewson et al. (2009), reported that they and their students had a sense of ignorance and confusion regarding IKS and traditional health practitioners (THP) – especially on the difference between these practitioners and so-called

“witchdoctors”. They also conceptualised that there is a prejudice against THP within South Africa, and that teachers would require in-service training to be able to integrate IKS and to be able to explain the integration to students’ parents. The teachers hoped that students would be enthusiastic to learn about traditional healing and IKS, but also noted that students would likely not take an entirely separate section of IKS in the curriculum as seriously – “because it would seem superficial” (Hewson et al., 2009, p. 8). The participants did not offer suggestions on how to combat this perception of superficiality, nor how to address the questions that students’ parents may have. Successful implementation and communication of a change requires collaboration from multiple levels.

The participants that Hewson et al. (2009) interviewed suggested strategies for implementing IKS. These techniques included workshops, small group discussions, and story-telling. Similarly, Jacobs’ (2015) teacher-participants study revealed that they wanted workshops to learn how to develop and test IKS material by hands-on training. Jacobs went on further to recommend that workshops should be used to support teachers during in-service training.



In addition, Hewson et al. (2009) recommended collaboration between science teachers, traditional health practitioners, and cultural elders – suggesting that the three could co-teach at all science levels. Together, these teachers could provide practical experiences such as preparing traditional medicine or demonstrating the use of various plants. Dziva et al. (2010) reported strategies, including: (a) asking what students know already, and building upon that knowledge; (b) clarifying concepts in the native language, as opposed to sticking to English; and (c) using familiar materials, such as pots and pans, to illustrate scientific concepts. However, these methods have not been standardised to all curricula.

Keane (2015) also cites several studies that show the reservation science teachers of all cultures have about incorporating IK into classroom practices. The teachers view science as a more powerful system of knowledge than IK. They seem to be reluctant to include IKS into their lessons, because of the culturally diverse composition of their classes. In

such cases, teachers appear to get confused as to whose indigenous knowledge they should teach. In a participatory research project in rural KwaZulu-Natal, teachers admitted they were not introducing IKS in their classes, as they were concerned about finishing the regular science syllabus (Keane, 2015). Similarly, Mc Knight's (2015) qualitative case study of three life sciences' teachers – which was located in the interpretive paradigm that aimed to explore the teachers' experiences of IKS – found that at a high school in South Africa, they do not spend much time on teaching IKS because of time-constraints, as they had to finish the syllabus and because IKS is not focused on in the examinations.

Additionally, Kaya and Seleti (2013) argued that teachers in African schools, specifically African schools, feel that the curriculum is still too academic and incapable of solving Africa's problems. The teachers believe that integrating IKS into the curriculum might make it more relevant and responsive to Africa's needs.

Matike's (2012) study, noted in the previous section, found that most respondent teachers from both schools had a positive attitude to IKS. Although the teachers had positive views on IKS, the study found they had difficulties with how IKS could be mainstreamed into all learning areas – particularly the science-orientated subjects. It is noteworthy that a large majority of respondent teachers (94% from St Mary's High and 83% from Letsatsing Science High) were agreeable that IKS should be integrated into the school curriculum. For this affirmation of the integration of IKS, several views were given in group discussions. The views included the following:

- Parents do not educate their children about their heritage (one infer therefore that by integrating IK, the learners will learn about their heritage).
- Learners will know their culture and the importance of traditional practices.
- Local knowledge will be preserved for future generations.
- Learners will know their roots and respect them.
- Learners lack knowledge about traditional practices, which are relevant for their livelihood – this knowledge can be brought to them through IKS.
- The importance of language and customs will be taught to the learners through IKS, and the cultural diversity of South Africa and the importance of culture will be opened

up for learners (Matike, 2012, p. 177).

Some of the teacher-respondents however expressed views that were against integration: 6% from St Mary's High School and 17% from Letsatsing Science High School were against the idea of integrating IKS into the school curriculum. They gave the following reasons for this:

- IKS has no relationship with subjects taught in the classroom.
- IKS is local knowledge and should be taught at home.
- Teaching IKS in the classroom would be a difficult task because IKS are not documented like other learning areas.
- The training given to educators did not involve the teaching of IKS; hence it would be difficult for educators to mainstream IKS into classroom work (Matike, 2012, p. 177).

Matike's teacher-respondents, as noted above, are not the only ones that expressed contrasting views and attitudes regarding IK integration. Two teachers interviewed in Muza's (2013) case study that explored the knowledge of teachers and learners about traditional medicinal plants, and their attitudes towards integration of that knowledge into the science curriculum – revealed contrasting views and attitudes of teachers about the general integration of IK relating to traditional medicines into the science curriculum. One teacher was supportive and passionate about the integration of medicinal plant knowledge into the curriculum. The other was sceptical and doubtful about the success of the integration. The sceptical teacher believed that the high school science syllabus is congested, and that there was no time to teach what she perceived to be irrelevant information. This view concurs with Khupe's (2014) assertion that there is an overload of content in the traditional curriculum. The second supportive teacher indicated that integration of knowledge about traditional medicinal plants into the school curriculum was necessary, because integration would help preserve dying Black cultures. Thus, integration should start at primary school. As much as the second teacher was supportive, however, the teacher recognised that the lack of willingness by learners would hinder successful integration. According to the teacher, the learners did not value knowledge of

the past, as they have been influenced by foreign cultures.

The researcher reasonably infer from the above studies that teachers generally have a positive disposition toward integration of IKS into the curriculum – despite the perceived challenges that may be roadblocks. One could state that the challenges expressed by teachers would not be insurmountable when appropriate curricular and governmental interventions are put in place. In addition, if communities and relevant education stakeholders are included in processes that would determine the nature of integration, then challenges pertaining to integration would be reduced.

2.3.7 Perspectives on the Current State of Support for Integration of IK into the School Curriculum

While there is considerable debate in the literature on the integration of IKS into the South African school curriculum, it is important to point out that the policy framework is in place, and for Onwu and Mosimege (2004) what needs to be interrogated and investigated are the modalities and not the merits of integration. This is because the Curriculum 2005 Natural Science Policy Document clearly spells out that IKS needs to be included in the school curriculum. It should be noted though, that it is not only the natural sciences that are required to integrate IKS. The principle of valuing and inclusion underpins all CAPS throughout the grades, and for all subjects or learning areas (Onwu & Mosimege, 2004; Khupe, 2014). Onwu and Mosimege's assertion that the modalities for the implementation of the South African IKS policy framework should be investigated, appeared to be supported by van Wyk (2002). The later author argued that although IKS are facing an onslaught in the face of globalisation where the production and value of Eurocentric knowledge and education is being standardised, there need to be concerted integration efforts so that learners do not become alienated from the IK around them.

Hewson et al. (2009) noted that the integration of IKS into the science curriculum would require government funding and support. Mothwa (2011) argued that teachers are not guided and supported by the Department of Education. Hewson et al. (2009) continued that this is especially true in the recommendation for co-teaching among science teachers

and cultural elders (described below) – which would require curriculum restructuring and funding for the additional teachers' time and expertise. Students should also be provided with opportunities to see IK in action in cultural centres. The researcher opines that the youth who participate in indigenous games – according to Palamuleni et al.'s (2012, p. 136) study – saw IK in action, and the games would help bolster processes to integrate IK (Matike, 2012).

Furthermore, the teachers would also require support in combatting the prejudices against IKS – as mentioned above. Dziva et al. (2010) wrote that the most challenging thing in implementing an IKS curriculum would be to embrace certain IK tenets (such as inter-dependent relationships within nature), while avoiding scientific misconceptions and superstitions that also arise from IK. Teachers could be supported by communities to promote awareness of IKS activities in schools. For this study, the researcher used multiple stakeholders/practitioners, teachers, Subject Advisors and subject HoDs – who all provided additional insights into these challenges, and possible concomitant solutions.



Hewson et al. (2009) argue that while the revised National Curriculum Statement implicitly supports IKS integration, one of the stumbling blocks has been that teachers do not necessarily know about the various IKS in South Africa. At most they can only teach what they know, and without a standardised IKS curriculum there is a danger of the education system being fractured. In their empirical study in which they sought the perspectives of both teachers and THP, the authors found both parties extremely supportive of integrating IKS into the school curriculum – although both parties raised concerns about the practical logistics of implementation.

The strategies utilised in other countries to support integration could be adapted to fit the South African education arrangement. Like in Alaska, guidelines and models for assisting teachers and districts with IKS integration could be developed; orientation integration programmes could be developed for teachers; and an online database of teaching curricular materials could be developed for easy access (Barnhardt, 2010).

2.4 PART FOUR: POSTCOLONIAL THEORY PRAXIS IN THIS STUDY

Part four reviews the literature on selected concepts and constructs extracted from postcolonial theory that are deemed relevant for enriching the theoretical framework for the purposes of assisting the researcher to gain deeper insights into matters affecting IK, and eventually helping him make a meticulous, informed interpretation and analysis of the data.

2.4.1 The Relevance of Postcolonial Concepts and Constructs for the Study

Postcolonialism or postcolonial studies is a discipline involving analysing, explaining and responding to the cultural legacy of imperialism and colonialism (Postcolonialism, n.d.). In line with this definition, this study assumed that the South African school curriculum – which is perceived to be dominated by Western knowledge and in which the IK curriculum has been relegated to a secondary position – is a legacy of colonialism. Thus, one effect of colonialism examined by postcolonial theory is the marginalisation of IK in the curriculum. Exploring postcolonialism notions, concepts and constructs, as indicated, was to help in understanding ways in which the cultural knowledge of colonised people could be re-validated in the school curriculum (*Ibid.*). Furthermore, it was also meant to gain deeper understanding of, and insights into, the phenomenon of IK integration and related challenges.

As implied above, postcolonial theory is complex and broad, and extends to and is used in various fields, and it was impossible to fully discuss in this section. The experiences that the discipline of postcolonialism have discussed are varied – including, among others, migration, slavery suppression, resistance, race, and it also responds to many disciplines like literature, history, politics, language, philosophy and education. It provided a methodology for these numerous disciplines (Ashcroft et al., 2008a; Slemon, 2008). Instead of interrogating postcolonial theory per se here, however, this section discussed a few notions, concepts and constructs extracted from postcolonial theory that are relevant for analysing and deepening understanding of the phenomenon under study – the integration of IK into the school curriculum. This was to help gain a deeper

understanding of issues that come through in the literature on IKS in education in general, and on the curriculum in particular. As well, aspects of postcolonial theory were meant to aid with the analysis and interpretation of issues that had a bearing on the theme of this study: the integration of IK into the IP school curriculum. To illustrate this point, the researcher raised some questions, such as Why is Western knowledge enjoying a central hegemonic position in the curriculum? Why has IK been relegated to the periphery of the curriculum? Why has the knowledge of non-Western peoples generally experienced *epistemic violence*? The construct *epistemic violence* is used here to mean the destruction of non-Western ways of viewing and understanding the world (Sharp, 2008).

Another example of the praxis of postcolonialism in this study: Foucault's (Power-knowledge, n.d.) understanding of the relation between power and knowledge may explain the subjugation of IK in all aspects of colonised peoples – including education. Foucault understood power to be based on knowledge and it makes use of knowledge, while in turn power reproduces knowledge (Power-knowledge, n.d.). This might have been why IK was subjugated and invalidated generally in all spheres of human life of the colonised, including education. Without knowledge, the indigenous people would be systematically denied (Fanon, 1961/1963) the means and power to produce and reproduce new knowledge about themselves for themselves (Postcolonialism, n.d.). Research literature on IKS in the curriculum appeared either muted on these issues, or it dealt with these issues in a superficial manner or in passing. Thus, this prompted the current study to revert to postcolonialism discourses to enhance clarity and understanding of the phenomenon under study – the integration of IK in the IP school curriculum.

This study, like postcolonialism, was based on an assumption that sought to engage and contest, albeit in a modest way, the legacies of colonialist discourses (Postcolonialism, n.d.) on education and the curriculum. It sought to do this by advancing a case for the integration of IK into the IP school curriculum. To paraphrase Fanon (1961/1963), if nothing else, this study assumed it would add to attempts to counter, to a modest degree, colonialism's systematic denial of a representative curriculum for all South African school

communities.

2.4.2 The Praxis of Postcolonial Concepts and Constructs in the Study

2.4.2.1 Politics of Knowledge

One central tenet of this study was the construct of integration of knowledge. Postcolonial theory, as an epistemology, responds to the politics of knowledge – that is, the generation, control, and distribution of knowledge, which is central to the study (Postcolonialism, n.d.). The researcher's assumption was, in a way, to use this study to give the curriculum implementers – the teachers, subject HoDs and Subject Advisors – an opportunity to generate knowledge and understanding about the integration of IK into the mainstream curriculum. The assumption that guided this study was not to suggest dismantling all things Western in the curriculum, removing and suppressing them from the curriculum, and replacing them with a dominant IK (Tiffin, 2008). This study was rather premised on the assumption that the hegemonic Western knowledge in the curriculum could converge and integrate with IK in an interfaced space. The voices of the teachers were to be heard in generating knowledge, which hopefully and ultimately may crystallise in strategies that would be used to integrate IK into the school curriculum. Postcolonial theory provided postcolonial perspectives that invited alternative ways of theorising questions of pedagogy, curriculum and research (Said, 1978; Spivak, 1990; Bhabha, 1994; Subedi & Daza, 2008; Sharp, 2008).

2.4.2.2 Hybridity

Carter (2006) stated that individuals who live in two life worlds – gaining knowledge from either side – develop knowledge that does not belong to one side. Hence, their lives thrive on hybrid knowledge spaces. This usually happens to those who live on boundaries or margins, according to Carter (2006). This state of affairs presents different scenarios in the spaces of acting. The existence of margins denies some people from partaking in

common goods and usually the Westerners tend to reinforce the boundaries. However, other forms of hybridity are in terms of culture, and would also be in classroom subjects like science – where one form of knowledge is barred from mixing with the other (Phiri, 2008).

Bhabha (1994) developed a concept of *hybridity* from whence the concept *hybridisation* derives. Singh (2009) suggests that hybridity is conceptually difficult to pin down, and broadly refers to the mixing of Eastern and Western cultures and to colonial subjects from Asia and Africa who have managed to find a balance between Eastern and Western cultural attributes. In supporting his stance on the broadness of hybridity, Singh (*Op cit.*) argues that hybridity should be thought of as different *hybridities*. This study was not concerned with the interrogation of and deeper engagements with the *hybridities* (*Ibid.*), except to note that it subscribed to the basic level of understanding of *hybridity* (Bhabha, 1994): *the mixture of two different cultures*. In the context of this study, and echoing Singh's (*Op cit.*) interpretation of Bhabha's (*Op cit.*) work – it seemed that the South African curriculum was stuck in the mimicry groove where Eurocentric knowledge was dominant because of colonial influence. The curriculum needs to move to a place of hybridity, where both Eurocentric and African knowledge have space in the school curriculum.

In part, hybridity deals with the creation of hybrid intellectual spaces that would see the mixture and integration of Western knowledge and the knowledge generated by decolonised indigenous peoples. Hybridity must deal with the new transcultural forms arising from cross-cultural exchange. As such, the concept implies for this study, that the cultural traditional forms of knowing and local knowledge should be integrated into the curriculum in a synergistic and symbiotic relationship with Western-orientated cultural knowledge (Ashcroft et al., 2008b; Petersen & Rutherford, 2008). The result may be that the combination would create something that is greater than the sum of the different and distinct kinds of knowledge – IK and Western knowledge. The hybrid curriculum would thus be an alternative to the skewed one. This mixture can however be contentious and disruptive (Bhabha, 1994). This study acknowledged this factor as it aimed to disrupt the

status quo by proposing a case for the introduction of IK into a school curriculum dominated by Western knowledge systems - thus challenging its position as a dominant discourse (Tiffin, 2008). This study assumed that IK must not only be recognised as being important, but must be included in the curriculum deliberately and consciously.

Furthermore, to understand how and why Western knowledge came to enjoy a hegemonic position in the curriculum regarding IK, the postcolonial theory analyses, explains, and responds to the 'how' and 'why' this is the case. To illustrate this, one of the key concepts of postcolonial theory, mimicry, may explain how teachers adapt the education of the coloniser but strive to change it in important ways – for example, through integration and hybridisation of the curriculum (Bhabha, 1994).

2.4.2.3 Third Space

The hybridisation of a curriculum cannot happen in a vacuum. A 'space' is needed – a physical space, the written curriculum, and an intellectual space (Bhabha, 1994). The construct of the 'Third Space' could be linked with Spivak's (2008) arguments for intellectual spaces within which the voices of the subaltern man and woman of the decolonised world to be created could be heard. This argument fuses closely with the basic intention of the study to 'hear' the perception of teachers on knowledge production, and on how IKS and the dominant curriculum could be integrated in a 'Third Space' of knowledge. In other words, the postcolonial theory advances arguments for the creation of intellectual spaces for decolonised peoples to speak for themselves to produce cultural discourses (Bhabha, 1994). As hinted above, this study aimed to develop a framework for the integration of IK into the hegemonic curriculum influenced and shaped by the voices of indigenous participants in the study.

It is, however, important to look at the two dominant theories within the hybridity discourse. The first is the Third Space theory and the second is the Ethical Space narrative. While both broadly represent the intersection of different cultural and social exposures to two different sources of knowledge, they have marked differences. For

example, the ethical space narrative looks at the dichotomous Western and African sources of knowledge and how their contestation defines the individual (Ermine, 2007). On the other hand, the hybridity in the 'Third Space' theory does not come from just the Western and African cultures – but from a multiplicity of sources (Benson, 2010). For example, Maniotes (2005) gave an example of the education given at home; the education would not necessarily be IK, but would be blended with the school curriculum to shape the learner.

2.4.2.4 De-colonisation of Education/Curriculum

Postcolonial theory destabilises the colonial education/curriculum, which was used by colonisers as a powerful vehicle to assimilate the indigenous people to their own way of thinking of and seeing the world. However, the destabilisation of education/curriculum should not necessarily be a negative and destructive counter-colonial process. Destabilisation through de-colonisation of the curriculum should be a carefully and meticulously planned deliberate dynamic process that aims *not* to subvert and remove useful Euro-Western knowledge systems (Tiffin, 2008). As pointed out, IK and Western knowledge are not necessarily mutually exclusive. The researcher would be agreeable to the assertion that the content of the syllabi in the curriculum should be re-written and re-read where there are elements of misrepresentation and/or omission of local knowledge in the school curriculum, and where the bulk of content is skewed toward dominant Euro-Western knowledge (*Ibid.*).

Moreover, if post-colonialism denotes that a decolonised world is constituted by an intellectual space characterised by contradictions, confusion, and hybridity (Postcolonialism, n.d.), the curriculum convergence/integration space in a decolonised education system may also exhibit contradictions, confusion and hybridity. This study to a degree revealed that the integration of somewhat contradictory kinds of knowledge to form a hybrid school curriculum is bound to create some 'confusion' and conflict among the implementers of that curriculum. To resolve this confusion, the integration of the curriculum in this space would be a process that could include the participation of several

critical educational role-players – besides the teachers – in the South African education system: like national government, provincial government, district offices, unions, traditional leaders, and political formations.

2.4.2.5 Chilisa’s Postcolonial Indigenous Research Paradigm

The researcher acknowledges upfront that he was influenced by Chilisa’s (2012) postcolonial indigenous research paradigm, which emphasised IKS and forms of knowledge production, and how social science researchers can meaningfully engage with these. The paradigm has basic epistemological foundations that correspond, to a significant degree, with those of postcolonial theory. Chilisa’s paradigm entails a critique of academic research dominated by Western ways of understanding the world, and develops a perspective that emphasises diversity in knowledge production. It explores the decolonisation of research as knowledge production. Chilisa proposed an activist paradigm – the aim of which is the emancipation of the “colonised other” in systems of knowledge production. These ideas appear to be conceptually linked to notions undergirding the postcolonial construct of ‘politics of knowledge’. The activist paradigm has to find ways to integrate IK methods and techniques into the “global knowledge economy”. The paradigm resonates with one basic assumption of this study – the basic objective of which is to provide for the voice of the three categories of curriculum implementers, the teachers, HoDs and Subject Advisers, on integrating IK into the mainstream to produce a hybrid curriculum. This study hoped, *inter alia*, to foreground IK in the school curriculum, which might have been relegated to the margins of the hegemonic Western-oriented curriculum (Meyiwa & Maseti, 2015).

To sum up: the notions, concepts and constructs outlined above are supplemental to the ‘actual’ theoretical framework discussed earlier. The issues further refined and strengthened the theoretical framework, elucidating further the research problem under this study, and also assisted in analysis and supplementing the ‘actual’ theoretical framework with other relevant scholarly work on IK and its integration into the school curriculum (Miles & Huberman, 1994). The notions, concepts and constructs constituted what the researcher called the supplemental framework – as illustrated in Figures 2.2 and

2.3 below.

2.5 THE 'COMPLETE' THEORETICAL FRAMEWORK: A SUMMARY

As suggested above and in the introduction, to gain a deeper insight into and understanding of the phenomenon under study – integration of IK in the IP school curriculum – the theoretical framework has two parts: (i) an actual theoretical framework (Miles & Huberman, 1994); and (ii) a 'supplemental framework' that derive from the notions, concepts and constructs from the literature review of IK discourses and postcolonial theory respectively discussed above. The 'supplemental framework', is in the mould of a conceptual framework. This supplemental framework relationship with the 'actual' theoretical framework (Miles & Huberman, 1994), could be diagrammatically presented in two ways, in Figure 2.2:

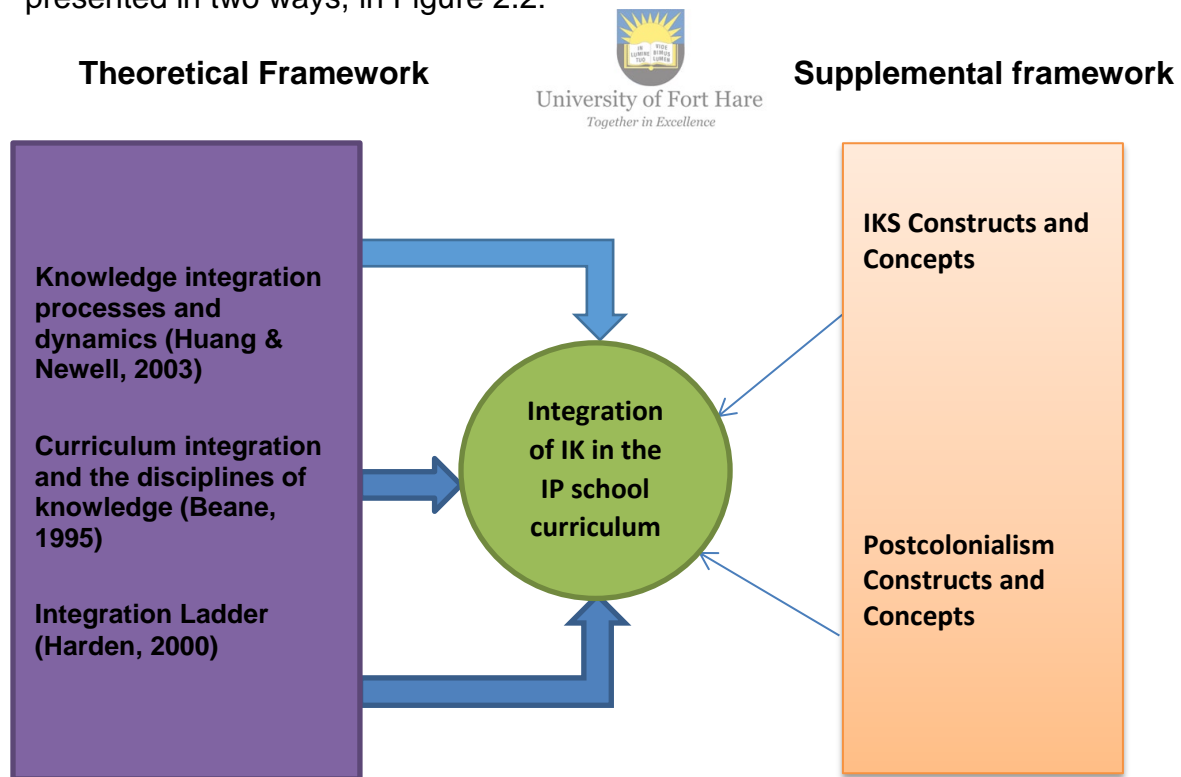


Figure 2.2 The theoretical framework and supplemental framework 1

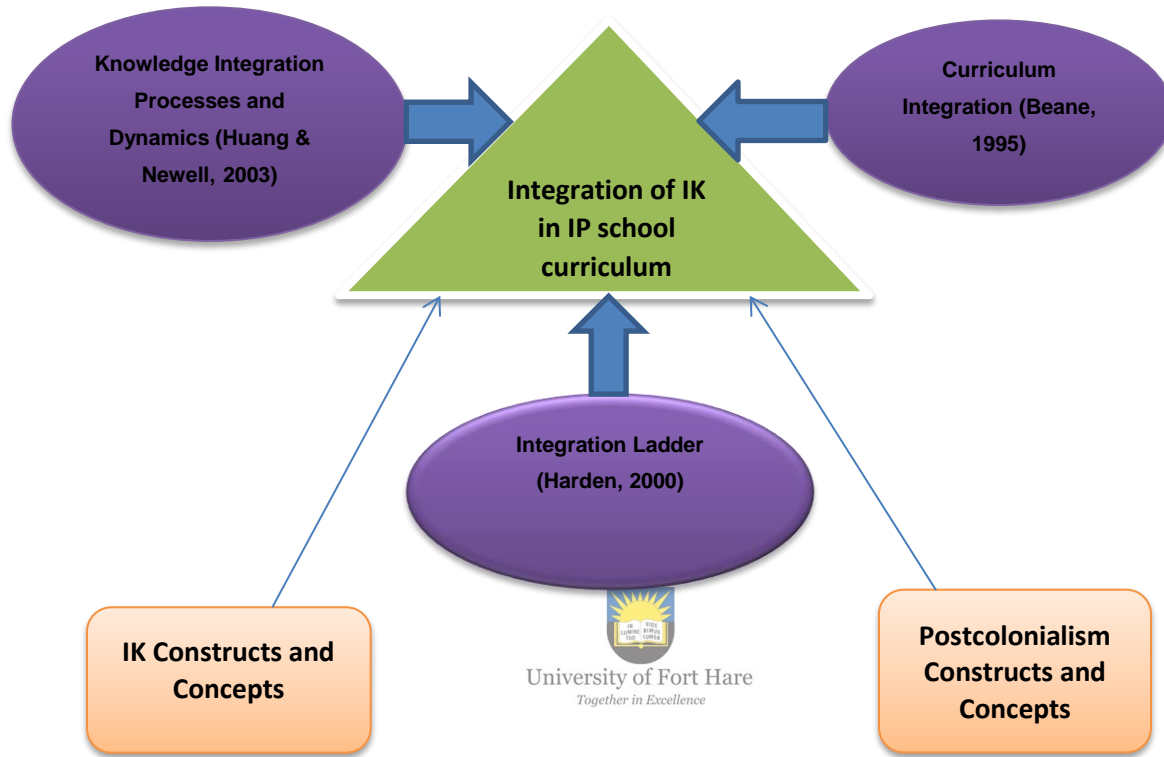


Figure 2.3 The theoretical framework and supplemental framework 2

Figures 2.2 and 2.3 visually show how the different concepts and constructs and theories come together to be used as a lens to gain deeper understanding of the phenomenon under study – the integration of IK into the IP school curriculum. Also, the combination was used interactively and in an integrative manner in the study, in order to assist with the discussion and interpretation of data.

Figure 2.3 presents an additional explanatory trajectory: it attempts to demonstrate the relationship between the ‘supplemental framework’ and the ‘theoretical framework’. The theoretical framework is constituted of knowledge integration processes and dynamics (Huang & Newell, 2003), curriculum integration and the disciplines of knowledge (Beane,

1995), and the integration ladder tool for curriculum planning and evaluation (Harden, 2000) will be the main lens of the study – while the notions, concepts and constructs extracted from the postcolonial theory and IK discourses, respectively, will be supplemental. Jointly, the actual and supplemental frameworks were employed to illuminate the subject under focus: the integration of IK in the IP school curriculum. Furthermore, the ‘actual’ theoretical framework addressed some specific aspects of integration of IK, and the ‘supplemental’ framework dealt with the generic aspects of IK integration (Harkiolakis, 2017).

2.6 SUMMARY

This chapter presents the theoretical framework that is two-pronged – the actual theoretical framework and the supplemental framework underpinning the whole study, which was used as the basis for analysing and interrogating the collected empirical data. Three theories comprised the actual theoretical framework: Huang and Newell’s (2003) *Knowledge integration processes and dynamics* theory; Beane’s (1995) *Disciplines of knowledge and curriculum integration theory* (1995); and Harden’s (2000) *Integration ladder*. The supplemental framework was constituted by notions, concepts and constructs used to frame the debates on integration, while postcolonial theory was used to interrogate the generic IKS discourse and its dichotomous relationship with “Western” or Eurocentric knowledge.

This chapter also provides a review of literature on IK and the possibility, certainty, attempts and challenges surrounding and centring on the integration of IK into the school curriculum. To give a contextual framework to the literature on IK and more specifically its integration into the curriculum, the chapter defined the core term, IK/IKS, and in the process appreciated the challenges that come with attempting to give a definition that is holistic and inclusive.

Chapter three presents the study methodology and design.


CHAPTER THREE

RESEARCH METHODOLOGY AND DESIGN

3.0 INTRODUCTION

This chapter describes and discusses the research design and the methodology. The description and discussion entail the proposed procedural-cum-operational plan regarding the different methods and procedures applied for this study (Kumar, 2014) on the integration of IK in the IP school curriculum in a selected Education District in the Eastern Cape in South Africa. The last section will cover the ethical considerations for this mixed-methods study.

Kumar's (2014) claims (extracted and paraphrased below) on what a research plan should entail best capture and summarise what this chapter does. This chapter:

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- Discusses and describes the study design, whether it is quantitative, qualitative or mixed methods;
 - Deliberates on the research approach of the study;
 - Mentions and describes methods of data collection to be used and why they will be used;
 - States where the responses to the questionnaire will be returned;
 - Outlines where the interviews will be conducted;
 - Explores ways in which research rigour in this study will be maintained;
 - Clarifies who will constitute the study population and how the study population will be identified;
 - Relays ways in which the sample will be selected and how it will be contacted;
 - Covers the management of ethical issues of the study.

3.1 PHILOSOPHICAL ORIENTATION OF THE RESEARCH

A research study has to be grounded in a paradigmatic philosophical framework. This is why the first question a researcher grapples with centres on the researcher's foundational assumptions and arguments about human nature – rather than whether a researcher prefers qualitative (QUAL), quantitative (QUANT) or mixed methods. Choosing research methods is not just a technical exercise; it involves more (Cohen, Manion & Morrison, 2000) – as will become clearer below; it is premised on the adopted paradigm chosen for a study that compromise four foundational elements (some authors like Treadwell, 2014, emphasised three: ontology, epistemology, methodology): ontology, epistemology, axiology and methodology (Treadwell, 2014; Harkiolakis, 2017; Kivunja & Kuyini, 2017). These will be unpacked later in this section.

This section explores discourses on paradigms generally, discusses selected paradigms, locates the study in a paradigm and advances reasons for the relevance and appropriateness of the paradigm for the current study.



Treadwell (2014) posited that the basic assumptions about human nature and ontology merge into two broad worldviews: the nomothetic approach and the idiographic approach. These worldviews direct and shape decisions on the nature of the research data to be collected and on the research methods to be used in a study. Human behaviour, in respect of the nomothetic worldview is predictable, measurable and generalisable, while the idiographic worldview perceives human behaviour as individualistic, unpredictable and subjective. Researchers subscribing to the nomothetic worldview make generalisations that “will hold true across time and space”, while researchers adhering to the idiographic worldview aim to describe and assess the subjectivity and individuality of humans instead of aiming to discover universal laws (Treadwell, 2014, p. 30). Treadwell's claims are echoed by Cohen et al. (2000, p. 7) – that the approach characterised by procedures and methods for discovering general laws could be referred to as nomothetic and the approach emphasising the particular and the individual can be labeled idiographic. To varying degrees, this research was influenced by both perspectives – as

it has adopted a mixed-methods approach. This approach will be explored later in this chapter.

As pointed out, the two worldviews, nomothetic and idiographic, are broad, representing basic assumptions about human behaviour that have coalesced. Nomothetic and idiographic worldviews appear to be closely linked to the ontological, epistemological and methodological considerations that a study ultimately adopts. Inherent in these two general worldviews are specific worldviews that evolve into worldviews that share the basic assumptions about human behaviour with broad worldviews – the nomothetic and idiographic worldviews respectively. In addition to sharing common basic assumptions with the two, these worldviews have developed their own basic assumptions and beliefs about human behaviour that are distinct and that have merged into specific worldviews. The specific worldviews are labeled as paradigms (Mackenzie & Knipe, 2006), and are quite numerous – as will become clearer in this discussion. Among the numerous paradigms, this study was premised on the postpositivism paradigm framework. The reasons for its adoption and implementation will become clear as this discussion progresses.



Research is meant to produce knowledge. Fundamentally, this study endeavoured, *inter alia*, to produce knowledge that would augment existing knowledge and discourses around the integration IK in the school curriculum. For any research study, questions on the ontology, epistemology and methodology of the research will arise. In clarifying the three concepts, Terre Blanche and Durrheim (2006, p. 5) stated that “ontology specifies the nature of reality that is to be studied and what is to be known; epistemology specifies the nature of the relation between the researcher (knower) and what can be known and methodology specifies how the researcher may go about practically studying whatever he or she believes can be known”. In a similar vein to Terre Blanche and Durrheim’s (2006) description of epistemology, Krauss (2005, p. 759) claimed that epistemology poses the following key questions: “What is the relationship between the knower and what is known? How do we know what we know? What counts as knowledge?” – and these questions have methodological and ontological implications for a study. Epistemology

concerns itself with how people or systems of people, like researchers, know things and how they think they know things (Keeney, 1983, p. 13, cited in Freud, p. 356). For the researcher, the difference between the philosophical concepts, ontology, epistemology, axiology, rhetoric, and methodology are described by Creswell (2003, p. 22, cited by Bakkabulindi, 2015, pp. 22-23) – that philosophically the “researcher make claims about what is knowledge (ontology), how we know it (epistemology), what values go into it (axiology), how we write about it (rhetoric), and the process for studying it (methodology)”. Kivunja and Kuyini’s (2017) article, *Understanding and Applying Research Paradigms in Educational Contexts*, reflects similar claims.

Related to the above statements, Cohen et al. (2000), citing Hitchcock and Hughes (1995) illustrates the relationship between ontological assumptions, epistemological assumptions, methodological considerations, and issues of instrumentation and data collection. Ontological assumptions lead to epistemological assumptions and they, in turn, give rise to questions of instrumentation and data collection. In this light, researchers have developed and evolved ontology and epistemology to where they form the basis of several methodological positions or paradigms that researchers can adopt for their studies. That is, the different orientations or three dimensions – ontology, epistemology and methodology (Terre Blanche & Durrheim, 2006). The different orientations have developed into several traditions that have characterised the research enterprise and have been referred to as paradigms (van Rensburg, 2001). Johnson and Christensen (2012) had similar views, and described a research paradigm as a perspective adopted by a community of researchers, which is grounded on a set of shared assumptions, concepts, values and practices. Likewise, Kivunja and Kuyini (2017) stated that a researcher should have a firm conception of the four elements that comprise research – epistemology, ontology, methodology and axiology – as they are the basic assumptions, beliefs, norms and values that each paradigm holds. When a researcher locates their research in a particular research paradigm, their research should uphold and be guided by the assumptions, beliefs, norms and values of the chosen paradigm (*Ibid.*). Eriksson and Koalainen (2008) described the four elements as paradigmatic assumptions related to researchers’ ontology (What is the nature of reality?), epistemology (How can the

researcher come to know this reality?), axiology (What is the role of a researcher's values in this quest?), and methodology (What is the nature of the research?).

Furthermore, in line with Kivunja and Kuyini's (2017) characterisation of paradigms above, Terre Blanche and Durrheim (2006) explain that paradigms embrace systems of interrelated practice and thinking, and they outline for the researcher the nature of their enquiry along the three assumptions – ontology, epistemology and methodology. In other words, the particular position or paradigm a researcher adopts is based on a researcher's ontological and epistemological orientation. In other words, a researcher's worldview will determine the direction of their research. This claim appears to resonate with the notion espoused by Becker and Bryman (2004) and Johnson and Christensen (2012) – that a paradigm is constituted by a combination of beliefs and practices that are associated with a particular worldview about how scientific practice should take place. Similarly, Gibbons and Anderson (2002) viewed paradigms as philosophical frameworks that guided how a researcher carries out their research. Maree (2007) concurred when describing a paradigm as a set of assumptions or beliefs about fundamental aspects of reality, which gives rise to a particular worldview. Similarly, Guba (1990a, p. 9) simply described them as “options for inquiry” and “basic belief systems”. This research adopted the postpositivism paradigm because of the nature of the research design adopted – a concurrent triangulation mixed-methods design.

There is a litany of paradigms. While Terre Blanche and Durrheim (2006) use three paradigms, positivism, interpretivism and constructionism, for illustrative purposes, Guba (1990b) adds another two, critical theory and postpositivism, which he regards as alternatives to positivism. Furthermore, Moyo, Modiba and Simwa (2015), in their chapter, *Critical research: Understanding Material Constraints and Engaging in Transformative Action Research*, deals with four main paradigms in research: positivist, interpretive, critical and Afrocentric. Chilisa and Kawulich (2012) add another two: the transformative paradigm and the postcolonial indigenous paradigm.

Owing to the numerous paradigms, each grounded in a particular set of generally accepted approaches regarding ontology, epistemology, human nature and methodology, the researcher grappled for a while with paradigmatically locating the study – especially as it is on the integration of IKS into the IP school curriculum and used a mixed-methods approach. This ‘grappling’ resonates with Kivunja and Kuyini’s (2017) remark that higher degree research students and early career researchers find it difficult to articulate the concept of a research paradigm. They find it challenging to apply in their research proposals and to locate their studies into a paradigm (*Ibid.*). Makombe (2017) presented similar thoughts in his article, *An Expose of the Relationship between Paradigm, Method and Design in Research*. Makombe specifically targeted early career researchers, Masters and PhD students, for whom confusion about the conceptual relationship between the research paradigm, research method and research design, is commonly observed.

Terre Blanche and Durrheim (2006) assisted with their explanation that paradigms coexist simultaneously on occasion in the social sciences and that the same researcher can use more than one paradigm. Stating otherwise, Lichtman (2006, p. 62) noted that it is difficult to put particular research into “a neat little box” of a particular philosophy or paradigm. Harkiolakis (2017, p. 19) similarly observed that other researchers “believe that paradigms are not to be seen as distinct but rather as overlapping or with fluid boundaries where one gives rise to and supports the other ..., so combining them is quite an acceptable way of conducting research”. This study used a mixed-methods approach, and Figure 3.1 (Harkiolakis, 2017, p. 19), illustrates the idea of the combination and overlapping of paradigms/approaches in the mixed-methods approach.

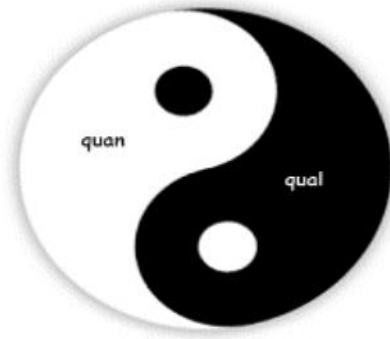


Figure 3.1: Combination and overlapping of approaches/paradigms in the mixed methods approach

This study adopted the postpositivism paradigm, although elements from other paradigms also subtly influenced the study – as will be illustrated in the discursive comparative discussion that follows. As there are two existing worldviews, the objectivistic and constructivist/interpretivist, the nomothetic and idiographic, which influence researchers and which researchers may decide to use, either depending on the suitability of the selected worldview – nomothetic or idiographic assumptions – for a study, this study adopted both the objectivistic and constructivist views. The arrangement was determined by the nature of this study and what the research sought to accomplish: the study adopted a mixed-methods approach which will be discussed later in this chapter. The positivists and empiricists, who subscribe to the objectivist (nomothetic) worldview, aim to predict, control and explain a phenomenon, while the interpretivists/constructivists (idiographic) aim to understand and to restructure (Bhengu, 2005). It must, however, be noted that the research methods used in this study to collect, interpret and analyse data, fit logically with postpositivism, which provides the rationale for the study, or otherwise the principle of coherence of the research design would have had been compromised (Durrheim, 2006) – as positivism dictates that QUANT research methods are to be the bedrock of research (Kivunja & Kuyini, 2017). Postpositivism, as will become clearer later, allows room for multiple approaches, methodologies, and methods.

Furthermore, in the following section, the discussion of the major principles of postpositivism will be related to the reasons why the mixed-methods study on the

integration of IK into the IP school curriculum adopted postpositivism as its philosophical guide and framework.

3.1.1 Positivism

Whilst postpositivism was the main anchor of this research, other paradigms influenced this study to a lesser or greater extent. Postpositivism provides room for the utilisation of multiple theories, different data collection methods, the utilisation of different types of data, and different methods of data analysis and interpretation (Guba, 1990b; Lichtman, 2006; Ryan, 2006; Creswell, 2013). In line with this postulation, positivism was also considered, to a degree, in this study. It is reiterated: postpositivism was the primary paradigm

A synoptic analytical-conceptual-descriptive discussion on the positivist paradigm is necessary to enhance comprehension of the paradigm, and also to provide context for the arguments on the relevance of the paradigm to this study. Guba (1990a, p. 9) argues that other alternative paradigms “emerged as successors to conventional positivism”. Positivism is said to be a paradigm that dominated the physical and social sciences for many centuries before being criticised in the latter half of the twentieth century (Harkiolakis, 2017, p. 12). Since the time of Descartes (1596-1650) researchers have focused on this paradigm. Descartes seemed to have been obsessed with searching for what one could label the ‘absolute truth’ – knowledge based on a solid and sure foundation. Positivists believe in searching to find out “how things *really* [italics added] are” and “how things really work” (Guba, 1990b, p. 19). This anxious pursuit of this kind of knowledge has been labeled Cartesian anxiety (*Ibid.*). Thus, positivism is a basic belief system grounded in a realist ontology; the belief that a reality out there is driven by unshakeable, immutable natural laws – and research is about discovering this “true” nature of reality and how it truly functions (Guba, 1990b, p. 19). Therefore, research has to be able to predict and control natural phenomena, and the scientist subscribing to this realist ontology must follow an objectivist epistemology and the most suitable methodology would thus be empirical experimentalism (*Ibid.*).

While Guba (1990) seemed to suggest that positivism developed since the time of Descartes, on the other hand Sarantakos (2005) states that empirical research developed since earlier times – more than 2000 years ago; it was practised by Greek philosophers. In the nineteenth century positivism began to enjoy a hegemonic position. Social problems caused by industrialisation and urbanisation led to calls for what was perceived to be realistic, specific and quantifiable data to provide information that could facilitate the formulation of relevant data that would assist in the resolution of these problems. Le Play (1806), Quételet, Saint-Simon and Comte, were the leading researchers of the era. August Comte (1798-1857) is perceived to be the one who embedded the positive method – as the method of social research. Comte asserted that true knowledge could only be achieved through observation and experimentation (Sarantakos, 2005; Kivunja & Kuyini, 2017).

Supporting the preceding views, Treadwell (2014, p. 13) asserted that the scientific tradition supports the values of objectivity and dispassionate observation and scientific approaches are mainly biased toward the concept of an external “real” observed and understood world, which scholars are agreeable on. In relation to the scientific tradition, Treadwell (2014) further suggested that scientific methods depict a combination of empiricism, rationalism and positivism. Empiricism refers to observation of the phenomenon made by the researcher; rationalism suggests logical reasoning; and positivism is undergirded by the idea that a phenomenon is governed and can be explained by rules (*Ibid.*).

The problems of bias or subjectivity of a researcher and the complexity of phenomena studied, are resolved by what the positivists explain as: (i) manipulative methodology to control both, and (ii) empirical methods to be decided upon by the phenomenon under study rather than by the researcher (Guba, 1990b).

When considering Guba’s (1990a) stance that postpositivism, together with critical theory and constructivism, reject positivism, it would seem paradoxical and illogical that this study – purporting to be located in a postpositivist paradigm – still found positivist notions,

concepts and constructs relevant. The nature of this study necessitated this seemingly anomalous arrangement. By virtue of having adopted a mixed-methods approach, this study included elements characteristic of the positivistic paradigm in research.

Returning to the case for the positivist paradigm in this study: First, this study used a questionnaire to collect QUANT data. Both the questionnaire as a research instrument and the QUANT data generated are located within the QUANT approach, which is associated with the researchers of the positivist school of thought. Second, this study used QUANT data analysis methods mainly used in positivist-orientated research: counting and statistical methods that are important for positivists (Treadwell, 2014). Even though this study was firmly grounded in the postpositivism paradigm, it however drew from and was directed and shaped by canons of positivist rigour and scepticism (Guba, 1990b; Anderson, 1998; Cohen et al, 2000; De Vos, Strydom, Fouche, & Delport, 2005; Kivunja & Kuyini, 2017).



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In its pure form, positivism would be unsuitable for this study, because it emphasises a near dogmatic view that aims to produce precise descriptions of parameters and relationships, uncovering truth and presenting it by empirical means, that believes that reality is independent of social construction, and that regards human behaviour as being passive, controlled and determined by the surrounding environment (Walsham, 1995; Henning, van Rensburg, & Smit, 2004). Contrary to positivism, this study appreciates that humans are active and purposeful actors who socially construct their surroundings (Miles & Huberman, 1984). That said, in the mould of what Cohen et al. (2000) stated, the researcher could maintain that this study, implicitly and/or explicitly, drew from positivism – although it was not located in positivism per se. It should be clear that the researcher did not attempt to be overly scientific, as one finds the statistical modeling somehow distant from one's experience, and rather hard to understand, and even more so to implement (Lichtman, 2006).

As this study adopted a mixed-methods approach, aspects of QUANT research methodology were used, which included the statistical analysis of data. Cohen et al. (*Op*

cit.) elaborated on the positivist rigours of the scientific method, and this study adhered to and was guided by the underlying principles of positivism during data collection and data analysis. The instrument (mainly the questionnaire), which was developed for data collection, was significantly influenced by positivist principles.

The positivist paradigm was not the only paradigm that influenced this study. As proponents of the mixed-methods approach would contend, the continued search for the one best paradigm should be rejected “and the assumed incommensurability of different paradigms as relics of a past era” (Greene & Caracelli, 2003, p. 95). Thus, in addition to positivism, this study was influenced by notions from the interpretivist paradigm.

3.1.2 Interpretivism

Subsumed within one of the objectives of this study – the views of teachers on the integration of IK into the IP school curriculum – was the intent to explore and examine the IP teachers’ conception of IK. It was hoped that the participants/respondents would share their understanding of IK, how they construct the meaning of IK, and its possibilities for enriching the curriculum. Hence, some notions of the interpretive paradigm influenced this study. In opposition to positivism that subscribes to the scientific tradition of valuing objectivity and detached observation – the interpretive paradigm values subjectivity. Interpretivists like phenomenologists and ethnographers seek to understand how humans interpret or make sense of events in their lived experiences (Treadwell, 2014). Although “generalisability of the findings of research conducted within the interpretivist paradigm is practically impossible” (Kivunja & Kuniyi, 2017, p. 32), for this study elements of interpretivism were deemed suitable – because its epistemology is inter-subjective knowledge construction (Treadwell, 2014). This humanistic approach was intended to assist the researcher to “build rich local understandings of [IK and its possibilities for the school curriculum] of teachers ... and of the cultures of classrooms [and] schools ...” (Taylor & Medina, 2013, unpagged). This study also subscribed to the interpretive paradigm view of focussing on the subjective understandings and experiences of the individuals in this study (Terre Blanche, Kelly, & Durrheim, 2006). Furthermore, the nature of the study dictated that it adopt some tenets and constructs of the interpretive research

paradigm. The paradigm acknowledges that:

- People actively construct their social world.
- Situations are fluid and changing, rather than fixed and static; events and behaviour evolve over time and are richly affected by context – they are situated activities.
- Events and individuals are unique and largely non-generalisable.
- People interpret events, contexts and situations, and act on the basis of those events.
- There are multiple interpretations of, and perspectives on, single events and situations.
- Reality is multi-layered and complex.
- Many events are not reducible to simplistic interpretation – hence ‘thick descriptions’ are essential, rather than reductionist.
- We need to examine situations through the eyes of participants, rather than the researcher. (Cohen et al., 2000, p. 22)



The interpretive paradigm views participants as sources of data. It seeks to reveal their perceptions of a phenomenon, what they say about a phenomenon, or the meaning they attach to such a phenomenon (Mason, 2000). Also, the researcher is viewed as a participant if one comprehends Nieuwenhuis (2016) correctly. Nieuwenhuis asserts that the researcher, with his/her own perceptions and interpretations, becomes an active agent in the research process. This study was concerned with the construction of meanings (Terre Blanche & Durrheim, 2006); Willig, 2013) and perceptions that teachers attach to issues around the integration of IK in the school curriculum; its prospects for the IP school curriculum; and the meanings teachers, HoDs and Subject Advisors attach to the integration of IK into the IP school curriculum. The views of participants/respondents on how they integrate IK into the IP school curriculum were importance to this study.

Having explored the positivist interpretivist paradigms and having made a case for each in the study, Figure 3.2 (below) clearly demonstrates the relation: (i) between the positivist

paradigm and the QUANT approach, and (ii) between the interpretive paradigm and the QUAL approach. The figure also illustrates the ontological, epistemological and methodological bases of the two paradigms:

	Ontology	Epistemology	Methodology
Positivist	<ul style="list-style-type: none"> ▪ Stable external reality ▪ Law-like 	<ul style="list-style-type: none"> ▪ Objective ▪ Detached observer 	<ul style="list-style-type: none"> ▪ Experimental ▪ Quantitative ▪ Hypothesis testing
Interpretivist	<ul style="list-style-type: none"> ▪ Internal reality of subjective experience 	<ul style="list-style-type: none"> ▪ Emphatic ▪ Observer subjectivity 	<ul style="list-style-type: none"> ▪ Interactional ▪ Interpretation ▪ Qualitative

Figure 3.2: The ontological, epistemological and methodological bases of the positivist and interpretivist paradigms

(Adapted from Terre Blanche & Durrheim, 2006, p. 7).



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To sum up, interpretivism emphasises the centrality of the individual in the research endeavour, and thus the aim is to understand the “subjective world of human experience” (Cohen et al., 2000, p. 22). The individuals’ interpretations of the world in which they live is paramount, and any theory must be based on data and thus should not come before the study (*Ibid.*). As it is underpinned by the QUAL approach, interpretivism yields in-depth explorations and thick descriptions of a phenomenon. That said, its perceived major flaw is subjectivity and the inability to generalise its findings beyond the situation studied (Maree, 2007; Kivunja & Kuyini, 2017). In this study, the ‘human experience’ of the curriculum implementers was paramount. In addition to positivism and interpretivism, this study was also influenced by pragmatism.

3.1.3 Pragmatism

Some authors like O’Neil and Koekemoer (2016) posited that pragmatism is not always referred to as a paradigm or philosophy of science, since is not committed to a single

philosophy. Kivunja and Kuyini (2017) and Harkiolakis (2017) appeared to agree that pragmatism provides a compromising position between positivism and constructionism where meaning comes from lived experience and cannot be attributed to predetermined frameworks of truth/reality. Similarly, Feilzer (2010, p. 8) remarked that pragmatism “sidesteps the contentious issues of truth and reality” and is a deconstructive paradigm that advocates the use of mixed methods in research. It focuses instead on 'what works' as the truth regarding the research questions under investigation” (Tashakkori & Teddlie 2003c, p. 713). It is deconstructive, because it debunks concepts such as “truth” and “reality” (Feilzer, 2010, p. 8). Mertens (2015) echoed the preceding attributes of pragmatism.

In keeping with the idea of a multiple paradigmatic influence on the study, as the study was going to utilise the mixed-methods approach, some notions of pragmatism influenced it as pragmatism perceives both QUAL and QUANT research as being significant – and thus should be mixed in a single study (Johnson & Christensen, 2012). Given this characteristic of pragmatism, postpositivism, the anchor of this study, can accommodate pragmatism as it also makes room for QUANT and QUAL research methods (Lincoln & Guba, 2000). Furthermore, as with postpositivism, pragmatism does not only make room for different forms of data collection and analysis methods – it also permits multiple different worldviews and different assumptions (Crossan, 2003; Stewart & Floyd, 2004; Ary, Jacobs, Razavieh, & Sorensen, 2009). Primarily, by its sheer design, this study had room for different worldviews and assumptions.

As pointed out above, postpositivism – in which this study was located – could accommodate pragmatism. The relevance of pragmatism to this study is further supported because pragmatism is perceived to be associated with mixed methods, the approach adopted by this study (Tashakkori & Teddlie, 2003a). Related to the latter statement, Kivunja and Kuyini (2017, p. 35) explained that: “this paradigm advocates a *relational epistemology* (i.e. relationships in research are best determined by what the researcher deems appropriate to that particular study), a *non-singular reality ontology* (that there is no single reality and all individuals have their own and unique interpretations

of reality), a *mixed-methods methodology* (a combination of quantitative and qualitative research methods), and a *value-laden axiology* (conducting research that benefits people)”.

Pragmatism also provides counter-arguments for the incompatibility thesis that QUANT and QUAL methods are incompatible. Pragmatists believe that the methods are compatible – and both can be used during research (Teddlie & Tashakorri, 2003). Stewart and Floyd (2004) and Kivunja and Kuyini (2017) further elaborated that, with pragmatism, data collection and analysis methods are selected with no philosophical loyalty to any alternative paradigm. However, they are chosen because they are most likely to assist the researcher gain deeper insights into and understandings of the problem. In line with the preceding, the pragmatist view is that theories and concepts are best considered for their usefulness (Bryant & Charmaz, 2014). This study, as a mixed-methods study, partially subscribed to this position: data collection and analysis methods used were ‘loyal’ to no particular paradigm per se, but rather to the dictates of QUANT and QUAL research under the umbrella method, as it were, of the mixed-methods research methodology.



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3.1.4 Afrocentricism

In a way, this study attempted to highlight the challenge of the hegemonic position that Western/Eurocentric knowledge enjoys in the South African school curriculum. In addition, in a modest way, this study was based on the assumption of validating and re-evaluating IK by according IK, in the curriculum, the same position of Western/Eurocentric knowledge through the integration of IK into the mainstream IP school curriculum. The ultimate practical purpose and intended goal was for the study to improve learning and teaching in classrooms through the integration of IK. In addition, the study employed some concepts and constructs of both postcolonialism and IK. Thus, the Afrocentric paradigm was relevant to an extent for this study. This assertion is best illustrated by the arguments proffered by Moyo et al., (2015, p. 65) – which are condensed as follows:

- It is not only Western ways of knowing that are valid; African experiences and ways

of knowing should be promoted and should operate next to Western scholarship; in this manner IKS could become the basis for challenging and interrogating Western ways of thinking.

- In educational research, the Afrocentric paradigm aims to change an enlighten classroom practices.
- The major theories of the Afrocentric paradigm are both postcolonialism and IKS, whose relevant lies in that they aim to understand and improve African conditions.

It is shortsighted not to reproduce here what Moyo et al. (*Op cit.*) regards as some tenets of Afrocentricism. The tenets adequately demonstrate the relevance of the paradigm to this study and capture to a reasonable degree the attitude the researcher and participants adopted when they approached the issue of integration. The Afrocentric paradigm

- focuses on local phenomena, with an interest in understanding how this impacts on the local and not the global;
- makes use of locally relevant constructs, methods and theories, derived from local experiences and IK;
- is not opposed to Western ways of knowing as it is integrative – that is combines Western and indigenous theories;
- [sees] knowledge as relational – truth is informed by the set of multiple relations that one has within a context. (Moyo, Modiba, & Simwa, 2015, p. 65)



This study, to a significant degree, subscribed to these tenets. Among other things, this study focused on the views of teachers on integration of local indigenous knowledge in the curriculum, and not per se on global phenomena. The attitude of the researcher and the participants throughout the study was that Western knowledge in textbooks and through teaching ought to be recognised and acknowledged. In chapter two, it was asserted that integration into the IP school must demonstrate what the researcher labels as 'integrativeness' – the deliberate, conscious, practical and theoretical blending and mixing of Western knowledge and local IK into teaching and learning. In this study, during data collection, teachers were encouraged to make reflections or give views on how both

Western knowledge and IK could be taught in an integrative way – and not in opposition to Western knowledge.

3.1.5 Postpositivism and its Relevance to this Study

Postpositivism was the primary paradigm this study was premised on. This section does not pretend to give a comprehensive overview of all aspects of postpositivism, in the manner of Baronov (2015) in his book *Conceptual foundations of social research methods*. Baronov presented a historico-philosophical-analytical-conceptual-descriptive narrative on postpositivism. This section highlights the major principles of the paradigm within which the study was conducted, while simultaneously providing a rationale/justification for its adoption. As pointed out, this study was influenced by a few paradigmatic research tools. That said, this study, which sought to establish how the integration of IK into the school curriculum occurs, was principally anchored in the postpositivist paradigm. Ryan (2006) asserted that postpositivism strives to merge the negative labeling against positivism, while Trochim (2006) argued that postpositivism takes a trajectory away from positivism and wholly rejects the central tenets of positivism. Noteworthy, with specific reference to the latter argument, Kivunja and Kuyini (2017, p. 32) regarded postpositivism as a “derivative” of positivism; a “cousin” to positivism, while Makombe (2017, p. 3369), stated that postpositivism transformed from positivism. In turn, Baronov (2015) shared that postpositivism is an outcome of critiquing positivism. However, Adam (2014, p. 5) appeared to negate the notion that positivism is a continuation of positivism, when arguing thus:

The first thing that must be said of postpositivism is that it is neither antipositivism nor a continuation of positivism by other means. Its essence is an attempt to transcend and upgrade positivism, not the rejection of all positivist ideas and postulates of the scientific method.

The following is an explanatory discussion on the major principles of postpositivism:

Creswell (2013) claimed that the postpositivist paradigm is reductionistic, logical, empirical and deterministic, and thus lends itself to different worldviews, multiple methods, and different forms of data collection and analysis. Guba (1990b) appears to concur when he argues that postpositivism allows for a research study to be based on as many data collection sources as possible – and should use different types of data and theories because relying on different sources minimises the distortion of interpretations. Cook (1985) (cited in Guba, 1990b, p. 21) termed this phenomenon “critical multiplism”. Similarly, Lichtman (2006, p. 5) asserts that postpositivism allows researchers to use multiple methods to “capture reality”, and in so doing “reality would be approximated”. In the same vein, Ryan (2006) asserted that postpositivism values and encourages different approaches and encourages insights that extend beyond the realm of measurable facts. Making a reasonable inference from the preceding statement – postpositivism is a move away from positivism and thus rejects the central tenets of positivism (Trochim, 2006).

Several authors (see Ritchie & Rigano, 2001; Guba & Lincoln, 2005; Maree, 2007; Bergman, 2008) advanced the theme that postpositivism allows for usage of multiple methods and different worldviews, including different forms of data collection and analyses, with the intent to justify research rigour. The production of both QUANT and QUAL data through the multiple data collection techniques is compatible with the postpositivist paradigm. This is connected to the notion that postpositivism pragmatically combines QUANT and QUAL methods – thus emphasising “the importance of multiple measures and observations, each of which may possess different types of error, and the need to use *triangulation* [italics and bold case in original] across these multiple errorful sources to try to get a better bead [seems to mean a better aim – a bead also means a knob forming part of a gun’s sight at the end of the barrel] on what’s happening in reality” Trochim, 2006, p. 3). Concurring with the efficacy of multiple methods to effect triangulation, authors like Sandelowski (2003), Rallis and Rossman (2003), Creswell (2014) and Okeke (2015) provide similar claims.

The postpositivist paradigm was preferred for this study on the integration of IK into the IP school curriculum for several reasons. First, it complemented the mixed-methods

approach that was adopted for this study – thus strengthening methodological consistency. Both the mixed-methods approach and the postpositivist paradigm make room for use of both the QUANT and QUAL methods, multiple forms of data collection and analysis, as well as different worldviews. This study used multiple methods for data collection: semi-structured interviews, focus discussion groups, self-administered questionnaires and document analysis. The deployment of these various routes ensured credible findings in this study (Hutton, 2009; van Wyk & Taole, 2015). Additionally, the use of the multiple data collection instruments helped the researcher obtain both QUANT and QUAL data. This is a significant strength of postpositivism (Maree, 2007). Using the multiple methods resulted in the researcher gaining deeper insights into and understanding on the status of integration of IK in the IP school curriculum, that is, on how integration is done by teachers; on factors that impede the integration; and on what strategies could be adopted to accomplish integration. In short, the multiple methods highlighted the discourses, conversations and narratives around the phenomenon of IK integration into the IP school curriculum.



Moreover, through the use of the multiple methods, a process called triangulation, facilitated the researcher's understanding of the phenomenon of the integration of IK into the IP curriculum. The understanding was better, because the phenomenon being studied was approached from multiple trajectories (Greene & Caracelli, 2003; Kanjee, 2006).

Second, and related to the former claims, postpositivism is a pliable and flexible paradigm that accommodates notions from other paradigms like positivism, interpretivism, pragmatism and the Afrocentric paradigm that influenced this study. The preceding pointer echoes the fact pointed out earlier, that postpositivism, like realism and pragmatism, accommodates worldviews and different assumptions as well as different forms of data collection and analysis methods (Crossan, 2003; Stewart & Floyd, 2004; Ary et al., 2009). Furthermore, O'Leary (2004) suggested that postpositivism aligns, in some ways, to the interpretivist or constructivist paradigm, while, simultaneously, it does not reject all positivist ideas and postulates of the scientific method (Adam, 2014). That said, the qualitative research-orientated Focus Group Discussions (FGD) and semi-

structured interview data-collection methods used for this study are generally aligned to the interpretivist or constructivist paradigm. It must be remembered that “postpositivism also does not reject quantitative methodology, but it does attempt to harness it within a more complex research design [like the concurrent triangulation mixed-methods design adopted and implemented by this study]. It is more cautious concerning strong and one-sided interpretations and restrained regarding the too extensive (or obsessive) use of (quantitative) data and methods” (Adam, 2014, p. 5).

Third, one of the aims of postpositivist research principles is to emphasise meaning and the creation of new knowledge (Ryan, 2006). As pointed out in chapter 1, the researcher hoped to make a theoretical contribution by discovering fresh indigenous terminologies – thus adding fresh notions to the epistemology of IK and adding information on how integration of IK into the school curriculum could be improved. This study augments the existing IK discourse and the body of knowledge pertaining to the integration of IK into the school curriculum – adding new understanding and conceptions of IK and its possibilities for the curriculum. The researcher also hoped to identify new and innovative teaching strategies that would improve classroom practices regarding the integration of IK; new strategies that would improve the implementation by the National and Provincial Education Departments – of integration as espoused in the South African CAPS documents. The findings generated by this study – as will be seen in chapters 5 and 6 – will help achieve these goals. Furthermore, should the implementation of the recommendations emanating from the findings of this study occur, the teachers' repertoire of teaching styles and strategies with particular reference to the integration of IK into the school curriculum could be enhanced and expanded – which will ultimately benefit the learners.

Last, postpositivism values good principles that are meant to work with human participants in their complexity. It posits that procedures, techniques and methods should always be subject to ethical scrutiny (Ryan, 2006). During this study, the researcher was guided by this principle and adhered to the research ethics discussed under the section ‘Ethical Considerations’ of this chapter – when interacting with the teachers, subject HoDs

and Subject Advisors.

The discussions above elucidate why the researcher anchored this study in the postpositivist paradigm. While there are many paradigms that may influence a study, the researcher believed that postpositivism should be the foundation of this mixed-methods research (Teddlie & Tashakkori, 2003). There was an attempt to thoughtfully mix in this single study the methodologies that subscribe to both QUANT and QUAL research notions and this would have yielded better results (Healy & Perry, 2000) that would have had been difficult to achieve should one methodology had been adopted. Moreover, to postpositivists, the world is ambiguous, variable and has multiple realities – and thus they challenge absolute reliance on one knowledge claim, as advocated by interpretivists and positivists (Creswell, 2003; Maree, 2007). The researcher firmly subscribed to this view for this study.

Summing up: the main purpose of the proposed study was to investigate the integration of IK in the IP school curriculum. Subsumed objectives were to: establish how teachers in the IP integrate IK into the school curriculum; investigate the views of IP school teachers on the integration of IK into the school curriculum; explore the role played by Subject Advisors and HoDs in supporting and monitoring the integration of IK into the IP school curriculum; and to derive research-based strategies to integrate IKS into the IP school curriculum. The study was located in the postpositivism paradigm. Postpositivism is reductionist, logical, empirical and deterministic – and thus lends itself to different worldviews, multiple methods, and different forms of data collection and analysis Creswell (2013). Thus postpositivism was suitable for this study because it sought, *inter alia*, to use multiple methods and different forms of data collection and analysis. Furthermore, as this study used the mixed-methods approach, it drew to some extent from some knowledge claims of positivism, interpretivism, pragmatism and the Afrocentric paradigm. That said, a research paradigm should be aligned to and be consistent with a relevant research approach.

With the problem and purpose statements formulated and armed with a paradigm

comprising the four foundational elements – ontology, epistemology, axiology and methodology (Harkiolakis, 2017; Kivunja & Kuyini, 2017) – this study had to adopt and implement this study approach. The mixed-methods approach was adopted. This approach would guide the selection and implementation of the research design (Harkiolakis, 2017) – the concurrent triangulation mixed-methods design. Figure 3.3 (below) displays the reasoning path followed in deciding on the approach and research design.

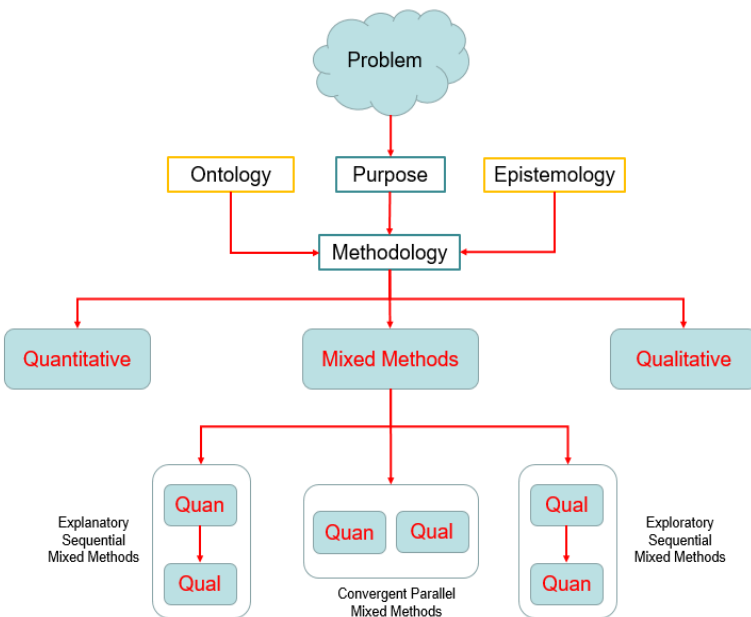


Figure 3.3: Research methodology mapping
(Harkiolakis, 2017, p. 15).

Harkiolakis' Table reflects the term 'methodology' instead of the concept 'paradigm'. This loose and interchangeable usage of terms by experienced researchers is what confuses early researchers (Kivunja & Kuyini, 2017; Makombe, 2017). As pointed out, the mixed-methods approach was chosen for this study, as well as the research design, the concurrent triangulation/convergent parallel mixed-methods design.

3.2 THE RESEARCH APPROACH

The intent of this section is to discuss and justify the mixed-methods approach adopted for this study. Subsumed, is the secondary objective to discuss and differentiate between the three main approaches in social research: the QUANT, QUAL and mixed-methods approaches (Maree, 2007). It is important that the QUANT and QUAL approaches are discussed, because their respective research methods constitute the mixed-methods approach (Lichtman, 2006; Plowright, 2011; Creswell, 2014; Kumar, 2014) – and within the mixed-methods approach the autonomy of each approach is not discarded but retained (Greene et al., 1989, cited in Gray, 2009; Flick, 2006, cited in Gray, 2009; Blaxter, Hughes, & Tight, 2010; Cohen, Manion, & Morrison, 2011; Plowright, 2011; Creswell, 2014; Kumar, 2014). Thus, understanding their respective underlying principles is important.



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For this study, the researcher did not engage deeply with the dichotomisation of QUANT versus QUAL research approaches (Kvale, 1996). Further commentaries on both approaches are incorporated in section 3.2.3, *Mixed-Methods Approach: Its Appropriateness for this Study*.

A brief differentiation between the QUANT and QUAL approach to research, shows that QUAL research approaches are useful in studying and “exploring the variation and diversity in any aspect of social life, whereas in QUANT research they are more suited to finding out the extent of this variation and diversity” (Kumar, 2014, p. 133). The difference between the two approaches is revealed when a researcher endeavours to respond to three questions:

- i. What knowledge claims are being made by the researcher?
- ii. What strategies of enquiry will inform the procedures?
- iii. What methods of data collection and analysis will be used? (Creswell, 2003, p. 5)

For this study the knowledge claims significantly derived from postpositivism. To a lesser degree, knowledge claims also derived from positivism, interpretivism, pragmatism and Afrocentricism.

The proposed traditions of inquiry or methodologies for this mixed-methods study, which is premised on postpositivism, derived from QUANT and QUAL approaches. In turn, the methods of data collection and analysis were aligned to the QUANT and QUAL approaches respectively. Discussions in the rest of this chapter will make this statement clearer.

3.2.1 Quantitative Research Approach

The QUANT approach originates from the traditional, experimental and positivist paradigms and emphasises empiricist viewpoints in line with its positivist orientation. The QUANT approach is not only used in the 'hard sciences/natural sciences', it can also be used to investigate social phenomenon through its scientific models. It views social reality as external, static and value neutral to the researcher. The QUANT approach is concerned with measuring using numbers, control, numerical description, prediction, causality, tests of phenomena, objectivity, validity, and reliability (Gilbert, 2008; Mertens, 2010; Bryman, 2012; Johnson & Christensen, 2012).

For the QUANT approach, the traditions of enquiry or methodologies could be experiments, quasi-experiments or surveys (Creswell, 2003; Creswell, 2007). The "typical form of quantitative research", the questionnaire/survey (Gilbert, 2008, p. 35), was used in this study.

3.2.2 Qualitative Research Approach

For QUAL studies the traditions of enquiry or methodologies could be ethnographies, case studies or phenomenological studies (Creswell, 2003; Creswell, 2007). In this study, the QUAL methods for collecting data were semi-structured interviews, focus group discussions and document analysis. The QUAL approach is more flexible and lends itself better to the study of aspects like values, beliefs, understanding, perceptions and meanings (Kumar, 2014, p. 133). In this study, the values, beliefs, understanding, perceptions, and meanings of teachers, subject HoDs and Subject Advisors on the integration of IKS into the IP school curriculum, were important. Moreover, the QUAL approach is interactional – involving interpretation characteristics attributable to the interpretive paradigm (Terre Blanche & Durrheim, 2006, p. 7).

Furthermore, Ary, Jacobs and Sorensen (2010) outline arguments that QUAL enquirers advance for using the QUAL approach. QUAL researchers believe in context-bound human behaviour and that the understanding and portrayal of meaning constructed by participants is important (Ary et al., 2010, p. 420). The researcher was interested in the behaviour of the participants, the IP teachers and HoDs (who are both teachers and curriculum supervisors), in the context of their integration of IK into the curriculum in their IP classrooms, and their understanding and meaning of the 'what' (IK content in the curriculum) and the 'how' – the teaching strategies, methods or styles they used during integration.

This study adopted neither the QUAL approach nor the QUANT approach as standalone approaches – but opted for the mixed-methods approach. The mixed- methods approach was deemed suitable to gain a lucid and complete understanding of the integration of IK into the IP school curriculum.

3.2.3 Mixed-Methods Approach: Its Appropriateness for this Study

The discussion of the mixed approach in this section is three-pronged: first, to enhance clarity, a synoptic historical origination of the approach is provided; second, a brief description of the basic tenets of the approach is given; and, third, an explanation of the reasons for its relevance for this study is provided.

The mixed-methods approach emanated from the so-called paradigm wars. These wars were fought from the late 1960s until the early 1990s (Williams & Vogt, 2014). From the earlier years up to the 1970s, the positivist paradigm, which is aligned with the QUANT approach, enjoyed a hegemonic epistemic position – while the end of the 1980s witnessed the dominance of the QUAL approach anchored on the constructivist-interpretivist paradigm. Adherents to these two approaches became embroiled in a conflict where the paradigm purists vociferously argued for the superiority of one method over another and claimed that the different approaches were incompatible – a stance rejected by adherents of the mixed approach. The dogmatic approach to research was a significant factor that incited the paradigm war, where one paradigm was pitted against the other as being absolute (Howe, 1988; Johnson & Onwuegbuzie, 2004; Denzin & Lincoln, 2008). Worldviews were contesting how researchers can know the world. The scientific perspective was pitted against the humanistic perspective, positivism against anti-positivism, and QUANT against QUAL (Williams & Vogt, 2014, pp. 4-5).



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During the ‘war’, dissenting voices emerged that believed that it was sometimes difficult to make a distinction between different approaches in practice – but easier when theorising. In addition, due to the complexities of social reality and the different constituencies in which research is conducted, a pragmatic approach was necessary. This dissenting cohort represented part of a community of researchers that signalled the onset of a third perspective/approach: the mixed-methods approach (De Lisle, 2011). It is also referred to as the *third paradigm* or the *third wave* (Ary, Jacobs, Sorensen, & Walker, 2014). Bernard (2013, p. 338) claimed that the first occurrence of the term “mixed methods” in the Social Science Citation Index, dates from 1993.

The mixed-methods approach entails a procedure for collecting, analysing, and mixing QUANT and QUAL data, and making inferences derived from both QUAL and QUANT data within a single study at some stage of the research process (Teddlie & Tashakorri, 2006; Creswell, 2007; Maree, 2007). The implication is that the data or findings should be integrated or connected at one or several stages in the study (Creswell, 2007). In this

study, the data and findings were integrated during the data analysis and interpretation stage – as well as during the discussion of findings stage.

As suggested, the mixed-method approach was chosen as it seemed likely to facilitate a better understanding of the phenomenon under study: the integration of IK into the IP school curriculum. The combination of the QUAL and QUANT approaches added more clarity to the research problem than when either approach would have had been used alone (Denzin & Lincoln, 2013; Creswell, 2014). Having different and distinct processes and procedures, the two approaches elicit more information on how teachers, subject HoDs and Subject Advisors approached or did not approach the integration of IKS in the IP school curriculum. Inferences drawn from both sets of data were much richer than when one approach would have had been used. On the one hand, the QUANT approach ensured greater breadth through the questionnaire self-administered by the teachers – whilst on the other the QUAL approach ensured greater depth through the FGD and the face-to-face semi-structured interviews with the Subject Advisors. Merriam and Tisdell (2016) capture this quality of QUAL research when they assert that it reaches beyond the what, where and when of QUANT analysis to investigate the why and how behind human behavior and the reasons that govern such behaviour. The document analysis further enriched the understanding of the IK integration dynamics and challenges. The words and narrative of the HoDs and Subject Advisors, added meaning to the QUANT numerical data obtained from the self-administered questionnaire. Indeed, the numbers added precision to the words – as becomes clearer in Chapter Four. In this way a more complete set of knowledge was produced that would otherwise not have been the case if either approach was used singly in the study (Tashakorri & Teddlie, 2003a; Creswell, 2007). This was an advantage of the mixed-methods approach used in this study, in that the teachers' responses and the HoDs and Subject Advisors QUAL narrative descriptions of some behaviour or information regarding the integration of IK into the IP school curriculum led to the construction of data sets that answered the research questions and even revealed more (Tashakorri & Teddlie, 2003a). In short, the main reason why the researcher used the mixed-methods approach was to know more about the research problem (Alexander, Thomas, Cronin, Fielding, & Moran-Ellis, 2008): how the integration

of IKS into the IP school curriculum occurs.

One significant advantage of using a mixed-methods approach is effecting “methodological triangulation” (Cohen & Manion, 1994, p. 235) – whereby the two approaches complement each other and compensate for each other’s weaknesses. As pointed out, both methods can be combined in a variety of ways to form mixed research methods. This is an attempt to draw from multiple epistemologies to frame and understand phenomena. Researchers are supposed to increase the validity of their studies (through triangulation) – to allow them to reach generalisations (Creswell & Garrett, 2008; Harkiolakis, 2017).

To add, using multiple methods provides multiple perspectives that ensure that the understanding of the phenomenon under study is significantly enhanced (Treadwell, 2014). In this study, the researcher concurrently employed the QUAL approach for the Subject Advisors and subject HoDs; and for the teachers the QUANT approach. Furthermore, the descriptive data from the QUAL methods, namely the semi-structured interviews and the FGD, and the numerical data from the QUANT method, the questionnaire/survey – achieved complementarity and compensation that helped gain a deeper understanding of how integration of IKS into the IP was being implemented or not implemented. In this study, the rich multiple perspectives on the role of Subject Advisors and HoDs in supporting and monitoring the integration of IK into the IP school curriculum, was made possible because of the multiple methods used by the researcher. Gaps in the numerical data on the role of Subject Advisors were filled by the narrative descriptive data of FGD with the HoDs and the semi-structured interviews with the Subject Advisors. By using the mixed-methods approach, the researcher broadened and deepened his inquiry (Alexander et al., 2008).

The relevance and use of QUANT and QUAL research processes and procedures in this study will become clearer under section 3.3 below. Using both helped answer the research question: How is IK integrated into the IP school curriculum?

3.3 RESEARCH DESIGN

This study adopted the concurrent triangulation mixed-methods design. However, before the adopted method design is discussed, to give context and enhance clarity this section will: explain the construct, *research design*; discuss the various types of mixed-method research designs; and present an exposition of the notation system rule for the respective mixed-method research design. The concurrent triangulation mixed-method design will be discussed in section 3.3.1.

A research design is a framework for action that acts as a link between the research questions and the implementation of the research. It serves as a plan, a guide that ensures that the study achieves its stated purpose and that the research can be completed with the available resources (Durrheim, 2006). As a strategic framework for action, its role is to serve as a bridge between the research questions and implementation of the research questions (*Ibid.*). It also serves a pivotal role in holding all elements of the study together (Trochim, 2006).



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There are various mixed-method designs. Some are differently labelled – but generally they mean the same thing. Others sound similar but emphasise one method or approach over the other (Alexander et al., 2008) – but have one thing in common: they combine the processes and procedures of QUANT and QUAL approaches at any stage of a single study that would include research question development, sampling strategies, data collection approaches, data analysis methods, or conclusions (Creswell & Garrett, 2008). The complexity and variety of mixed-method research designs are illustrated by 19 definitions that are synthesised into one as follows:

Mixed-methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration. (Johnson, Onwuegbuzie, & Turner, 2007, p. 123)

Johnson and Onwuegbuzie (2004) provided a very similar definition of mixed-methods research design that resonates with Teddlie and Tashakkori's (2009) description – that mixed-methods research must include at least one QUANT strand and one QUAL strand, a strand being a component of a study that encompasses the basic process of conducting QUANT or QUAL research like posing a question, collecting data, analysing data and interpreting results based on that study. As will be demonstrated in this section, this study subscribed to this requirement. For example, the QUANT data were collected by means of a self-administered questionnaire and subjected to a QUANT data analysis and interpretation. SPSS software was used to analyse and interpret the QUANT data. SPSS was deemed compatible with NVivo software that was planned to be used for textual data analysis in hybrid studies (Williams & Vogt, 2014). The QUAL data were collected by semi-structured interviews with Subject Advisors, FGD with HoDs, and document analysis. The intent was to code and analyse the textual data by using NVivo which is fully embraced by Qualitative Solutions and Research International (QSR International) – a computer program that facilitates the management, searching and retrieval of narrative data (Brazely, 2003). However, the plan did not materialise due to challenges explained under section 3.6.2. Instead, a manual systematic thematic analysis was implemented, with reading and re-reading the responses from participants or FGD to depict the key items/units, and then the formulation of categories and identifying emerging themes. This is explained in detail later in the chapter.

That there are various typologies – the classification schemes to describe various mixed-method designs (De Lisle, 2011) – illustrates the plethora of mixed-method designs pointed out earlier. To briefly demonstrate in an annotated fashion, the plethora of mixed-method research designs, a few examples furnished by different authors will be cited. Three basic mixed-method designs are identified by van Wyk and Taole (2015): convergent parallel, explanatory sequential, and exploratory sequential. Creswell and Plano-Clark (2011) add one mixed-method design to the three explored by van Wyk and Taole: the embedded mixed-method research design. Furthermore, Gray (2009) identifies three types of mixed-method designs: qualitative then quantitative; quantitative

then qualitative; and quantitative and qualitative concurrently. Moreover, Ary et al. (2014) describe six designs: concurrent triangulation; parallel; sequential; fully mixed; conversion; and embedded design.

Owing to the plethora of mixed-method designs, the researcher initially struggled during the proposal stage of this study to select a relevant one to be used for the study. The questions suggested by Ary et al. (2014) that a researcher should ask in considering a mixed-method design, helped the researcher to select a suitable design:

Will the study involve one or more methods of data collection?

Will the study have one phase, two phases, or multiple phases?

Will data collection occur sequentially or concurrently?

Will data conversion occur?

Will the study be mixed in the initial stages only, across all stages, in the end stages only, or in some other combination?

Does the qualitative or quantitative component have priority, or are they of equal importance? (Ary et al., 2014, p. 594)



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The questions made the researcher reflect and ultimately influenced his decision to identify and choose the concurrent triangulation mixed-method design over the others that were said to be commonly used: the explanatory design, the exploratory design, and the embedded design (Ivankova, Creswell, & Plano-Clark, 2007).

It is deemed necessary here to digress briefly and to explain succinctly the *notation system* used in mixed-methods – before continuing with the narrative on the designs. The notation system makes the design clearer to the audience and the researcher, and helps the researcher in determining and showing the logic in the relationship between QUAN and QUAL components (Ary et al., 2014).

Morse (1991, cited in Ary et al. 2014), who was a nursing researcher (Creswell, Plano-Clark, Gutman, & Hanson, 2003) – asserted that the notation system should use a plus

(+) sign to show that the data collection and analysis methods occur simultaneously. To show that data collection and analysis occur in sequence, an arrow (\rightarrow) is used. The weight or importance of the methods used in the study is symbolised by using uppercase letters for prominence and lowercase for denoting a less dominant method. In mixed-method studies there are no rules that determine the appropriate proportions devoted to QUANT and QUAL research. Parentheses could be utilised to indicate methods embedded in other studies. The notation system rules are:

Weighting priority

QUAL + QUAN (both equally important)

QUAN + qual (QUAN approach is dominant)

QUAL + quan (QUAL approach is dominant)

Sequence

QUAN \rightarrow Qual (QUAN collection or analysis occurs first, followed by QUAL collection/analysis)

QUAL \rightarrow Quan (QUAL collection or analysis occurs first, followed by QUANT collection/analysis)



Embedded

QUAL (quan)

QUAN (qual) (Ary et al., 2014, p. 596).

Morse (2003) described the notation system comprehensively, but the above description suffices for this study on the integration of IK into the IP school curriculum.

Resuming the narrative on the research designs: the notation system rule for the concurrent triangulation mixed-method design was: QUAL + QUAN. Both methods carried equal weight in this study.

In the discussion below, the researcher will first summarise the characteristics of the respective mixed-method designs commonly used in mixed-method studies, briefly elaborating on the concurrent triangulation mixed-method design adopted for this study. The commonly used mixed-method designs – explanatory, exploratory and embedded – and the concurrent triangulation design, will be discussed (Ivankova et al., 2007).

3.3.1 The (Sequential) Explanatory Designs

The terms ‘explanatory design’ and ‘sequential explanatory design’ mean the same thing (see van Wyk & Taole, 2015). This design could take place in two distinct phases, where in the first phase QUANT data are collected and analysed and in the second phase the collection and analysis of QUAL data occurs. QUANT data are normally given priority and the data are used to provide a general overview of the phenomenon under study in the first phase – while illuminating the QUANT results (Creswell et al., 2003; Creswell & Plano-Clark, 2007; Maree, 2007).

The steps of this design are:



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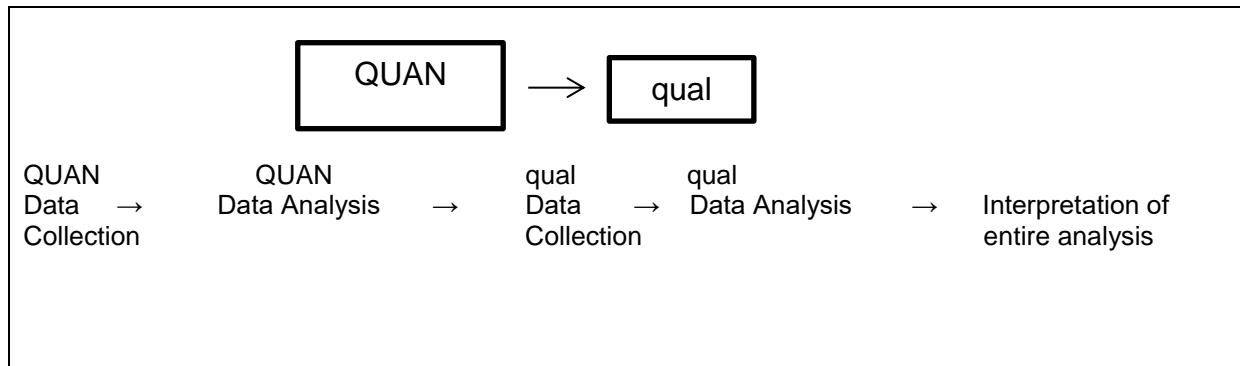


Figure 3.4: Sequential explanatory design (Adapted from Creswell, Plano Clark, Gutman, & Hanson, 2003, p. 225).

The QUANT and QUAL methods are integrated/mixed during the interpretation phase of the study. Its straightforwardness is its strength; its weakness is the length of time it takes to collect data for the completion of the two stages (Creswell et al., 2003; van Wyk & Taole, 2015). Thus, the researcher did not adopt it for this study.

3.3.2 The (Sequential) Exploratory Designs

The term 'exploratory design' means the same as 'sequential exploratory design'. The exploratory designs are also two-phased, but QUAL is dominant (Creswell & Plano Clark, 2007) – in contrast to the explanatory design. A further distinction is that the exploratory design is meant to explore a phenomenon, while the explanatory design is suited to explain and interpret relationships (Creswell et al., 2003). Generally, this design has similar attributes to the explanatory design. The exploratory design has QUAL data and analysis collected in the first phase so as to uncover a phenomenon; then, in the second phase, the data are collected quantitatively. Integration of the two phases occurs during the interpretation phase (Creswell et al., 2003; Maree, 2007; Creswell & Plano Clark, 2007).

The steps of this design are visually represented as follows:

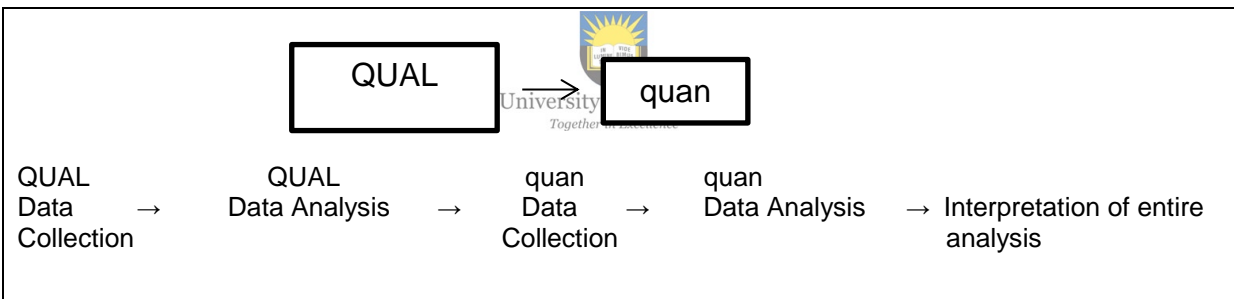


Figure 3.5: Sequential exploratory design

(Adapted from Creswell, Plano Clark, Gutman, & Hanson, 2003, p. 225).

This exploratory design was overlooked for this study for the same reasons the explanatory design was overlooked: the substantial length of time needed to complete both data-collection phases (Creswell et al., 2003).

3.3.3 The Embedded Design/Concurrent Nested Designs

Creswell et al. (2003) and Creswell and Plano-Clark (2007) use the term *nested design* designs/models interchangeably with the term *embedded design*. These designs are

perceived as fully mixed designs (Niglas, 2009). In these designs, one type of data is embedded within the other set. One data set provides a supportive secondary role. In a QUAL dominant design, the QUAN data are embedded or nested within the QUAL design, and vice versa in a QUAN design (Lieberman, 2005; Creswell & Plano-Clark, 2007; van Wyk & Taole, 2015). The main reason for using the embedded design, is that it provides scope for answering different questions that would not normally be possible using a single data set. Possibly, each type of question requires different types of data (Ary et al., 2014).

Pictorially the steps can be depicted as follows:

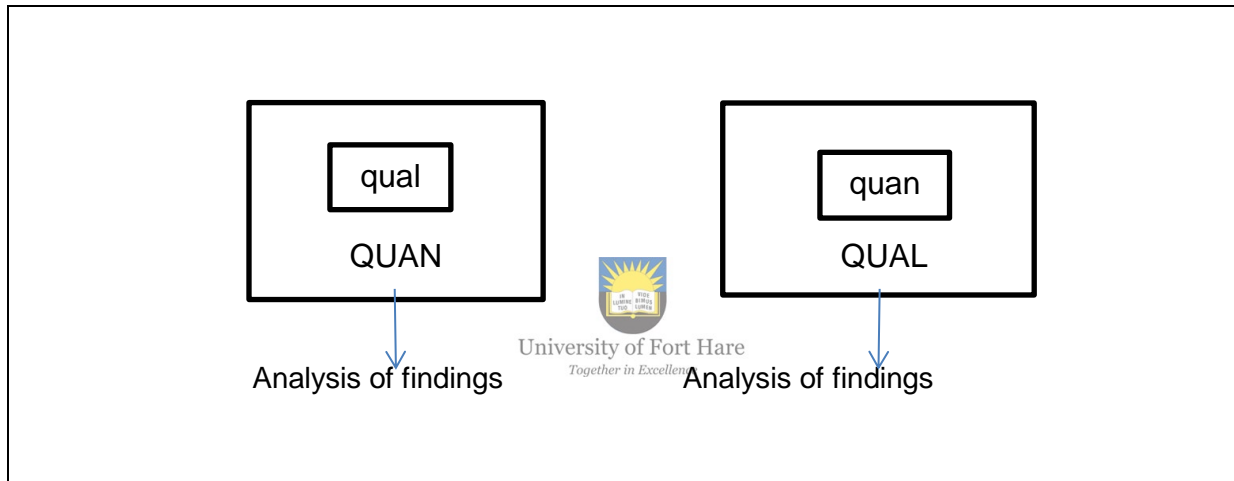


Figure 3.6: Embedded design/concurrent nested design

(Adapted from Creswell, Plano Clark, Gutman, & Hanson, 2003, p. 226).

This design has a number of strengths that include collecting data during one data-collection phase, and it provides a study with the strengths of both QUANT and QUAL data. The main reason for avoiding this design for this study, was that the two methods are unequal in their priority – which would have led to unequal evidence in the study. This may be disadvantageous when interpreting the final results (Creswell et al., 2003). The researcher wanted QUANT and QUAL data to enjoy equal status and priority.

This study adopted and implemented the concurrent triangulation mixed-method design (also known as the convergent parallel mixed-method design). The researcher was

closely guided by the following four pertinent dimensions in adopting the concurrent triangulation mixed-method design: (i) the purpose of the research as outlined in chapter 1; (ii) the context or theoretical paradigm informing the research; (iii) the research techniques used to collect and analyse data (Durrheim, 2006). Visually, the four dimensions considered were:

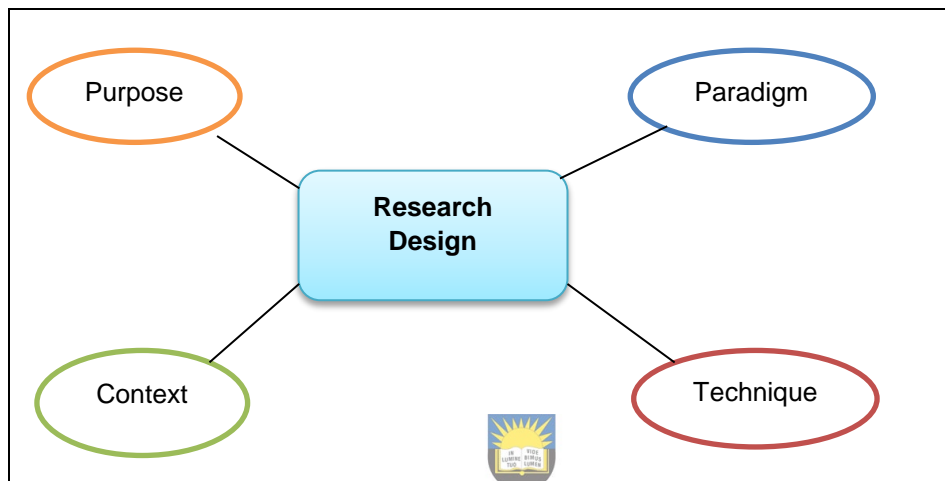


Figure 3.7: Four dimensions of decision-making in research design
(Adapted from Durrheim, 2006, p. 37).

3.3.4 Concurrent Triangulation Mixed-Method Design: This Study's Research Design

Primarily, this sub-section provides a descriptive characterisation of and justifies the concurrent triangulation mixed-method design used in this study. This one-phase design is also referred to as the convergent parallel mixed-method design (van Wyk & Taole, 2015). In this design, the researcher collects and analyses QUAL and QUANT data during the same phase of the research – and then merges the two sets of results into an overall interpretation. The analysis of the QUANT and QUAL data occurs separately, but at the same time. The results/findings are then mixed during the interpretation and conclusions (Ary et al., 2014; van Wyk & Taole, 2015).

For this study, the researcher followed the same protocol of data collection during the same phase. The researcher distributed the self-administered questionnaires to identified schools for completion by teachers who taught in the IP phase. In the meantime, during while collecting the questionnaires, the researcher arranged with HoDs for FGD and with the Subject Advisors for individual semi-structured interviews. The FGD and interviews occurred intermittently during the process of collecting the questionnaires from the schools. The QUANT and QUAL data were analysed separately – but the findings were integrated or merged into one overall interpretation, where the QUANT results were related to the QUAL findings. This will become clear in Chapters Four and Five. Section 3.6 will also illustrate this.

The challenge with using this design is that it requires a high degree of expertise on the part of the researcher to analyse both QUAL and QUANT data (Creswell, 2015). The researcher did not experience a challenge with analysis of the QUAL data, although the planned utilisation of the NVivo software to assist in the analysis of the textual data was abandoned, because of unforeseen challenges: the person who was going to help the researcher with the NVivo program resigned and relocated, and the researcher could not afford to purchase the program or to acquire a professional service with the requisite expertise. NVivo was going to complement the SPSS software that was used in the analysis of the QUANT data – because the researcher subscribed to the contention of Williams and Vogt (2014, p. 7) that the “emergence of software such as NVivo, compatible with SPSS, have practically facilitated hybrid developments”. The advantages of using computer programs in mixed-method designs contexts – a hybrid research design – influenced the researcher to plan to use both programs for this study. The advantages were adequately captured as follows:

The advantages of using computer programs in this [concurrent triangulation mixed-method design] context are therefore generally those that apply in single method analyses – the ability to manage data, the ability to return to the data and explore them in more detail, and the ability to ask different questions of the data. (Brazely, 2003, p. 393)

Diagrammatically, the steps of the concurrent triangulation mixed-method research design adopted for this study can be presented as follows:

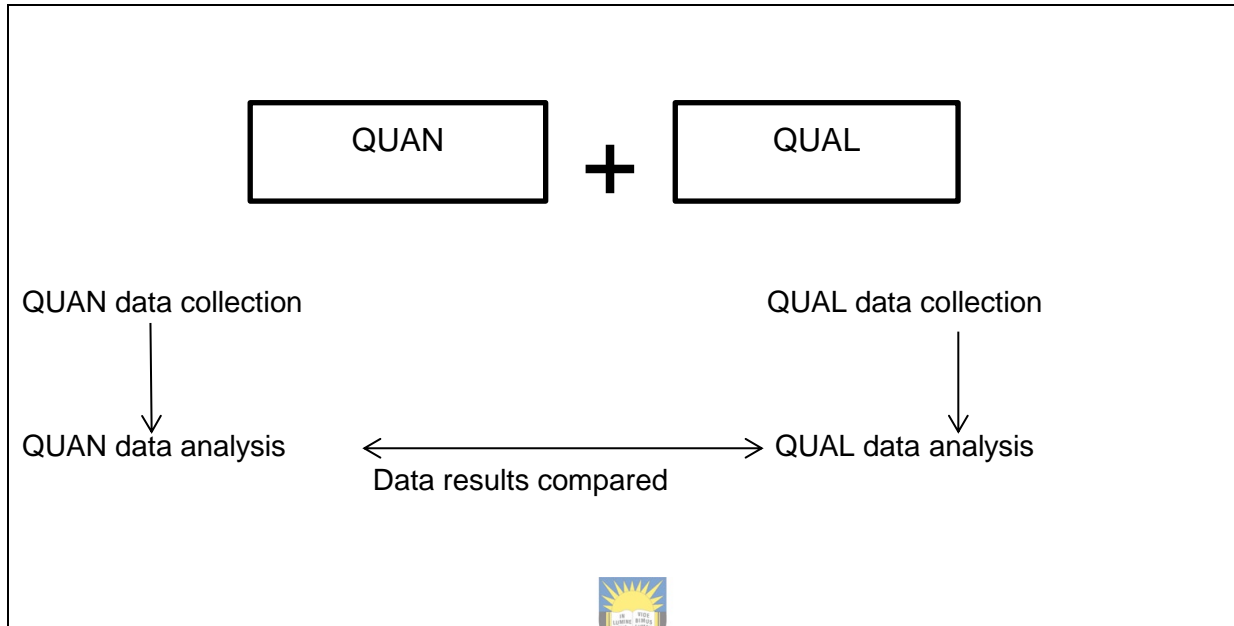


Figure 3.8: Concurrent triangulation design

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(Adapted from Creswell, Plano Clark, Gutman, & Hanson, 2003, p. 226)

The design was adopted primarily to obtain complementary data (Creswell & Plano-Clark, 2007). Additionally, to maintain methodological consistency or “methodological congruence” (Morse, 2003, p. 189), or “methodological integrity” (*Ibid.*, p. 190), as well as to paradigmatically (postpositivism) and methodologically (mixed-method approach) align this study – the researcher used the concurrent triangulation mixed-method design where he collected QUANT and QUAL data simultaneously, and integrated the data to interpret the overall results to gain deeper understanding of the phenomenon of IKS integration in the IP school curriculum (Creswell, 2014).

Moreover, the concurrent triangulation mixed-method design was considered suitable for this study because the researcher believed it would facilitate obtaining

maximum/complete information (van Wyk & Taole, 2015) from teachers, HoDs and Subject Advisors on how integration of IKS into the IP school curriculum occurs.

The following sections discuss processes and procedures of this study that subscribed to the concurrent triangulation mixed-method design.

3.4 RESEARCH SITE, POPULATION, SAMPLE AND SAMPLING PROCEDURES

3.4.1 Research Site

The research site for this study was an Education District in the Eastern Cape Province, South Africa. The intended initial site, a Circuit Management Centre (CMC) – CMCs constitute an Education District – in another Education District about 180 km from where the researcher works and resides was discarded because of challenges explained in section 3.4.3.2.1. The CMC site was preferred because it had piloted the introduction of African indigenous languages and it was thus assumed that its teachers would provide the researcher with rich information for the study. The second and eventual research site, an Education District, was conveniently sampled because of its relative proximity to where the researcher works and resides.

The study's research site, like the initial abandoned research site, is also a predominantly vast, rural and relatively new Education District covering rural areas of a former homeland – as well as pockets of small urban centres. It is characterised by a high proportion of small and unviable schools with growing urban schools but declining rural schools common to most Education Districts in the Eastern Cape. The Education District has small and very small schools that are divided between commercial farming areas and rural areas of a former homeland during the apartheid era in South Africa (South Africa. National Treasury. Government Technical Advisory Centre [GTAC], 2016). After the rationalisation and realignment of the 23 Education Districts into 12, to be aligned to the six municipal and two metropolitan municipal boundaries in the Eastern Cape, the

selected Education District inherited 165 secondary schools, 469 primary schools, and 48 combined schools – a total of 689 schools² (Province of the Eastern Cape Department of Education [ECDoE]. 2015/16 Annual Performance Plan, 2015, pp. 33-35).

3.4.2 Target Population

There is what seems to be a common understanding among authors on what constitutes a target population. For example, Wallen and Fraenkel (2001) described a target population as a population about which information is sought, and it may refer to a group of people that share one or more characteristics from which data can be gathered and analysed. Similarly, Fogelman and Comber (2007) and Khan (2011) explain a target population as a group of individuals that has one or more universal features of concern to the researcher – for the purpose of gaining information and drawing conclusions. Lumadi (2015) extends the population to include objects with the same characteristics. The meaning of the concept ‘objects’ in Sturgis’ (2008) definition, is inclusive of both people and objects. Sturgis (2008, p. 167) suggested that ‘objects’ may be individuals, households, organisations, countries or “practically anything we can define as belonging to a single taxonomic class”. Moreover, Babbie (2010) states that a target population provides an aggregate of elements from which the sample is chosen.

The vast and largely rural Eastern Cape Province, South Africa, has 12 Education Districts constituted by several CMCs. The population of this study comprised teachers teaching in combined and primary schools with an IP, subject HoDs in this phase, and Subject Advisors supporting and monitoring the teachers in the phase. This population was relevant for providing data on the phenomenon under study: the integration of IK in the IP school curriculum. The researcher decided to sample a target population in the selected new Education District that would demand less finances and time to travel to.

² The number of schools may have changed as these figures are based on the 2014 Annual School Survey of Public Ordinary Schools in the Eastern Cape Province.

3.4.3 Sample and Sampling

Generally authors (see Karavakas, 2008; Babbie, 2010) define a sample as a selection of people drawn from a population that will actually provide the data to be analysed in a study. However, Lumadi's (2015) definition, while consistent with Karavakas and Babbie's, appears limited in scope with regard to the purpose of a sample. He defines a sample as "a set of respondents or participants selected from a larger population *for the purpose of conducting a survey* [italics added]" (Lumadi, 2015, p. 226). Thus it would be reasonable to make an inference premised on Lumadi's definition that sampled participants for a study would be useful only as respondents to a questionnaire in a survey. The researcher believes that a sample is drawn not only for conducting a survey, but also for conducting interviews and FGD. This was the case for this study.

It was impossible to carry out the mixed-methods study in all schools in the Eastern Cape Province or in all schools in the Education District selected. To illustrate the point: in 2017 the Eastern Cape had 5 581 schools with 3 279 registered as primary schools, 883 registered as secondary schools, 1 374 combined schools, and 45 Learners with Special Education Needs schools (Province of the Eastern Cape Department of Education [ECDoE]. 2018/19 Annual Performance Plan, 2018, p. 21). The selected, relatively new Education District, had inherited 165 secondary schools, 469 primary schools and 48 combined schools to make a total of 689 schools (Province of the Eastern Cape. ECDoE. 2015/16 Annual Performance Plan, 2015, pp. 33-35). Considering the number of schools, sampling was necessary.

The samples for this study were drawn from a population consisting of IP teachers, subject HoDs and Subject Advisors from the selected Education District. From the purposefully and conveniently sampled 20 schools, the researcher also purposefully sampled 71 (67 returned the questionnaires) IP teachers and 10 subject HoDs. A total of five Subject Advisors were also purposefully selected from the District Office. The total sample was 72. As hinted, the decision on one Education District and the number of the sample was informed by logistical considerations such as expenses, time and

accessibility (Cohen et al., 2011) – considering that the selected Education District, particularly, and the Eastern Cape Province, generally, are vast and mainly rural.

To select a sample, sampling is used. Sampling is a process, act or technique of selecting a suitable representative set of people from a population for determining parameters or characteristics of the whole population (Babbie, 2010). Put differently: the sample should be representative of the whole population so that the findings could be generalised from the research sample to the whole population (Lumadi, 2015). Owing to the purposive sampling technique implemented, this study was made practical and easier to organise. Moreover, anxieties about time and costs for the study were lessened (see Karavakas, 2008; Lumadi, 2015).

In respect of discussing the two specific sampling techniques employed in this study, a brief differentiation between the broad sampling classes, probability sampling and non-probability sampling (Babbie, 2010), is given in the sections that follow. Neither sampling method is the sole domain of the QUANT or QUAL domain. Single method or mixed-method studies can utilise any or can blend them when answering a research question under study (Kemper, Stringfield, & Teddlie, 2003).

3.4.3.1 Non-Probability Sampling

In non-probability sampling, researchers draw targeted samples and thus the chances of members of the wider population being selected for the sample are unknown (Cohen et al., 2011). Said differently, the inclusion of an individual in the sample cannot be calculated. Some individuals would have no chance of being selected (Huysamen, 1998). There is a deliberate avoidance of selecting a sample that represents the wider population and that seeks to represent a particular group in the wider population (Maree, 2007). To illustrate: in this study only 67 IP teachers from 20 schools in the selected Education District were sampled. The non-probability samples are useful for small scale research like this study. In addition, the samples are less complicated to set up, less expensive, and can be adequate where researchers do not intend to generalise their findings beyond

the sample in question (Cohen et al., 2011). In any event, the nature of this study did not intend to generalise the findings; however, the findings could be of value to other researchers intending to conduct a similar study in other provinces in South Africa.

Laher and Botha (2012) identified seven techniques of non-probability sampling: convenience; snowball; quota; maximum variation; critical case; theoretical; and purposive. Purposive sampling and convenience sampling were chosen and implemented for this study.

3.4.3.1.1 Purposive Sampling

This was a mixed-method study, even though it adopted purposive sampling as one of the sampling techniques, which is mainly used in QUAL research (Neuman, 2011). At times it is referred to as judgement sampling (Ary et al., 2010; Laher and Botha, 2012) or purposeful sampling (Schreier, 2018). As pointed out earlier, single method or mixed-methods studies can utilise any sampling technique irrespective of whether it is classified under probability sampling or non-probability sampling; they can also be blended in terms of answering a research question under study (Kemper et al., 2003).

In purposive sampling, the sampling units are not chosen randomly, but according to characteristics of a population specified by the researcher (Johnson & Christensen, 2012). Also, the researcher finds the participants using his/her own experience, previous research or ingenuity – and is guided by specific criteria/characteristics to identify the most suitable candidates. The participants would be considered representative or typical of the population (Cohen et al., 2011; Johnson & Christensen, 2012; Laher & Botha, 2012; Ary et al., 2014), in line with Kemper et al.'s (2003, p. 273) assertion that “sampling issues are inherently practical”, and so choosing the purposive sampling strategy was mainly informed by a pragmatic consideration – that the units would provide the requisite relevant data key to the study and resources available to the researcher (Emmel, 2013). Furthermore, the choice for this sampling technique rested on the assumption that one would get information-rich samples using this technique (Patton, 1990, cited in

Onwuegbuzie & Collins, 2007). Thus, the sampled 67 teachers, ten HoDs and five Subject Advisors, were sampled purposefully for they were perceived to be rich with the relevant data the proposed study sought. It was believed that the respondents/participants would possess the in-depth knowledge because of their experience and professional role in respect of the information that the study sought. Qualitatively, the researcher believed that the size of the sample did not matter the most; of more importance was how it was used to interpret and explain phenomena (Emmel, 2013). Also, it was believed that the sample size would yield sufficient data on the subject matter under investigation for the study (Patton, 2015), and it did.

As pointed out, this study did not only use purposive sampling – it also used convenience sampling.

3.4.3.1.2 Convenience Sampling

It was decided to replace systematic random sampling with convenience sampling after the experiences explained in sub-section 3.4.3.2.1 below. Convenience sampling (also occasionally called accidental or haphazard sampling) is the most expedient to use compared to other sampling techniques (Laher & Botha, 2012) – in that the participants are selected because they are easily accessible (Gall, Borg, & Gall, 1996). The researcher samples whoever is available and willing to respond to the survey (Laher & Botha, 2012).

While convenience sampling is the most expedient, it is also perceived to be the weakest sampling procedure (Gall, Borg, & Gall, 1996). This is because choosing readily available individuals would not be representative of the wider population (Laher & Botha, 2012) – and it would thus be almost impossible to make a generalisation (Gall, Borg, & Gall, 1996).

The researcher chose the convenience procedure – fully conscious of its perceived weaknesses. Factors that would mitigate against the weakness of the procedure were considered. The schools were not chosen only because they were easily accessible in

terms of time and distance. With the assistance of a District Official, the researcher selected schools with IP teachers who were perceived to possess rich information relevant to the study and who would be willing to participate. In addition, to enhance the credibility of sample selection, selection was not done on the basis of convenience sampling alone (Merriam & Tisdell, 2016). Convenience sampling was blended with purposive sampling to compensate for the perceived flaws of convenience sampling. The schools were deemed appropriate sites, but the method of recruiting and selecting this study's participants and respondents was purposive (Padgett, 2017). Said otherwise, the schools were conveniently selected, but the teachers were purposively selected: only those IP teachers who had the necessary experience and knowledge were chosen as participants and respondents. It must be noted that the nature of the study was not to generalise findings per se; however, the findings could be valuable to other researchers embarking on similar research and may find resonance with similar locations if this study was conducted there.

3.4.3.2 Probability Sampling



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To reiterate, this study was a mixed-methods study. The preliminary basic assumption of the researcher was that the basic sampling approaches follow the design of the study (Ary et al., 2014) to strengthen the 'mixed methods' approach of the study. The study was to employ the concurrent triangulation mixed-method design (van Wyk & Taole, 2015), and the sampling approach was to be parallel/concurrent sampling according to which sampling is conducted simultaneously (Ary et al., 2014). Systematic random sampling, a probability sampling technique, was to be used concurrently with purposive sampling. Owing to unforeseen challenges at the commencement of data collection, the plan was abandoned. The challenges are discussed in section 3.4.3.2.1, below.

In probability sampling, researchers draw samples randomly from the population (Cohen et al. 2011) because probability sampling methods are premised on the principles of randomness and probability theory (Maree, 2007). Therefore, the chances of members of a wider population being selected for the sample are known (Cohen et al., 2011). The

sample can be drawn scientifically, whereby “random selection of cases [is such] that every unit of analysis in a study has an equal chance of being chosen for a study” (Bernard, 2013, p. 128). A probability or unbiased sample is produced when every individual in a population has precisely the same chance, as every other individual, of being selected. The unbiased sample, which is representative of a population, is derived from a list called a sample frame – where a given number of analysis units are taken (Bernard, 2013). When planning for data collection, before the abandonment of the systematic sampling processes in the field due to unforeseen challenges, the sample frame for this study comprised combined schools and primary schools with an Intermediate Phase.

As pointed out, this study did not aim to generalise per se. One of the main purposes for using probability sampling however concerns generalisability. Generalisability is the ability to extrapolate findings from a subset of a population or particular setting to a larger defined population of people or settings (Kemper et al., 2003). The sample of schools with an IP (target population) was to be sampled quantitatively through systematic random sampling – a probability sampling technique. The idea was to achieve a degree of generalisability so that the sample was representative of the selected Education District.

Probability sampling techniques are numerous. Kemper et al. (*Op cit.*) identifies the following: simple random; stratified random; cluster; multistage cluster; and systematic random. As pointed out, this study was to adopt systematic random sampling – which is discussed next.

3.4.3.2.1 Systematic Random Sampling

Before explaining the challenges that led to the abandonment of this sampling technique, a brief exposition of systematic random sampling is necessary. There is some need for basic calculation in systematic random sampling (Laher & Botha, 2012). In systematic

sampling, the M th or K th object or individual to be included in a study is chosen from a list or sampling frame – whereby n or K refers to the sampling interval (Kemper et al., 2003; Yount, 2006; Blaxter et al., 2010). Laher and Botha (2012) advised that a researcher should obtain as large a sample as they can to reduce sampling error – and also caution that this should be within reason. In heeding Laher and Botha's call, the researcher was to be satisfied with a sample of 20 schools, considering the vastness of the predominantly rural area, time, and money constraints.

When the researcher visited the schools in the initial planned research site, the CMC (after getting permission from the District Office), challenges became obvious:

- Some of the sampled rural schools were typically small with enrolments of less than 65 and had two or three teachers who were teaching multi-graded classes. These schools were on the verge of being rationalised and/or merged with other nearby schools according to the Provincial Department of Education's rationalisation, realignment, merging, and closure of small unviable schools policy – which provided guidelines for the rationalisation and realignment of small or non-viable schools (South Africa. National Treasury. GTAC, 2016). The principals and few teachers expressed uncertainty about the future of these schools and were not enthusiastic about participating in the study. Nonetheless, the efforts, time and logistical costs that would have been necessary for distributing and collecting one or two questionnaires from these schools, would not have justified sampling these schools. Moreover, the fieldwork was self-sponsored and the researcher could not afford research field assistants.
- On arrival at some of these deeply rural schools, they were closed. On enquiring from members of the community living nearby, it was established that communities had moved the learners to other schools due to dwindling learner enrolment. Out of impatience, the communities had pre-empted the requisite processes and procedures regulating the closure of schools, as spelt out in Section 33, sub-section 1 of the South African Schools Act, No 84 of 1996 and Section 12 A – which provides a legal

framework for the merger of schools. The communities believed that the Provincial Education Department was taking too long to officially close the schools and merge them with nearby schools.

- Furthermore, other sampled schools were found to be far-flung, and located deep in the rural hinterland, and a suitable vehicle to negotiate the bad rural roads was not available. The researcher had thought that by the time of data collection, he would have secured a research grant, but this was unsuccessful. The researcher had underestimated the adverse impact the vastness and 'rurality' of the initially selected CMC would have on research plans.
- In addition, the attitude of some principals at some of the sampled schools was not welcoming – even after the researcher had explained this study. There were undercurrents of internal District politics at play that the researcher was unaware of. The researcher learned that the tensions in the District were the result of changed management due to the rationalisation of the 23 Education Districts into 12 in 2017. The alignment of the Education Districts with Municipal boundaries was aimed at enhancing intergovernmental relations and joint government programmes. The rationalisation was accompanied by concomitant management changes in the form of appointments of new District Directors and new Circuit Managers (Eastern Cape. ECDoE, 2018/19 Annual Performance Plan Province, 2018). Tensions arose after appointments and they had the unintended consequence of making access to the participants difficult – although the requisite research approval letters were available.
- Lastly, removing the above schools from the sampling frame and reworking the sample would have been fruitless. There may have been the possibility that new randomly selected schools would have similar challenges. The list of schools that served as a sampling frame did not however reveal which schools experienced similar challenges. Under the circumstances, random systematic sampling seemed to be a futile exercise. It was thus discarded as a sampling technique.

In hindsight, the researcher might have investigated the dynamics of the research site more rigorously during piloting (see sub-section 3.5.2.). However, as much as the researcher would have preferred to employ the systematic random sampling technique

for the study, it would have been almost impossible to do under the circumstances. The researcher took stock of the situation and decided on a fall-back position – which was to modify plans. Flexibility that would include reviewing the usefulness of the systematic random sampling technique became necessary (Rimando, Brace, Namageyo-Funa, Parr, Sealy, Davis, Martinez, & Christiana, 2015). Thus, the researcher decided to blend purposive sampling with convenience sampling for the study (systematic random sampling had been discarded).

3.5 DATA COLLECTION PROCEDURES AND TECHNIQUES

3.5.1 Initial Consultations and Arrangements

After the supervisors had validated the research instruments, the researcher applied for a research ethics clearance certificate from the University of Fort Hare's Ethics and Higher Degrees Committee. After securing the ethics clearance certificate (see Appendix M), the supervisor wrote an introductory letter (see Appendix N) to the ECDoE and District Office – granting the researcher permission to collect data. The letter was used to seek permission from management of the ECDoE to access the research site – the selected Education District. The ECDoE granted the research approval letter (see Appendix O). In the meantime, a permission letter for the District Director to gain access to the District was written (see Appendix I). Also, a letter requesting the teachers to complete the questionnaire was crafted (see Appendix J); additionally, a letter requesting permission for the Subject Advisors (see Appendix K) and HoDs (see Appendix L) to be interviewed and recorded was developed. The District Office, which managed the Education District, was approached for permission to conduct the pilot study first, and then the main study later. The approval was granted on the strength of the ECDoE Head Office approval letter. A Chief Education Specialist then helped identify the teachers, the subject HoDs and the Subject Advisors, who would be willing to participate in the pilot study.

3.5.2 Pilot Study

A pilot study or trial run (Ary et al., 2014) is a small preliminary study conducted prior the actual study. Its intent is to test or refine aspects of a final study – like data-collection instruments, research design or analysis plans (Yin, 2016). In addition, for this study, the pilot study was conducted to evaluate whether it was feasible to undertake the study. Moreover, it was meant to help the researcher determine the duration of the intended study, cost issues, and events that could impact on the study. Furthermore, the pilot study was done in order to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale study (Hulley, Cummings, Browner, Grady, & Newman, 2011; Ary et al., 2014; Gumbo, 2015). With these objectives in mind, the researcher conducted the pilot study after the selection of teachers for completing the questionnaire, the HoDs for the FGD, and the Subject Advisors for the semi-structured interviews. For the pilot study, the participants and respondents were sampled purposively, which is deemed useful in pilot studies (Bernard, 2013). The costs, travel time and availability of participants and respondents were determining factors for the number of participants for the pilot study. Furthermore, the pilot study was an opportunity to practice (Yin, 2016) operating the newly acquired voice-recorder. The opportunity to practice was valuable, because it gave the researcher confidence and eliminated the apprehension experienced prior to the pilot study. Furthermore, the pilot study provided the researcher with some practice with using the recording device and the researcher's mobile as a backup recording device. The participants and respondents of the pilot test were not part of those considered for the full-scale study.

The pilot study indicated that the study was feasible to undertake with careful and meticulous planning – although the initial planned meeting arrangement with respondents was a failure. The idea was to meet with participants and respondents, explain the study, and conduct one FGD with HoDs, three individual interviews with Subject Advisors, while the 10 teachers were completing the self-administered questions. The Circuit Manager had agreed to supervise the questionnaire completion session. The school names were known and the Circuit Manager had confirmed twice before the researcher travelled 193

km to the venue that the participants and respondents had agreed upon. The meeting was however a complete failure. There were only three teachers present and the Circuit Manager – who was not part of the pilot sample. There were no HoDs or Subject Advisors.

The second arranged meeting was an improvement, and the researcher conducted the focus-group discussion with only one HoD short (only three turned up). There was an individual interview with one Subject Advisor instead of three – one did not arrive and one had left a message that the interview should be conducted where he lived in a city 63 km from where the researcher resides.

The interview with the available Subject Advisor took 50 minutes. There was a debriefing session during which time the Subject Advisor highlighted three unclear questions. The researcher considered the suggestions and revised the questions accordingly. The problem that was highlighted on the questions was mainly ambiguity and repetition.



The FGD with the three HoDs was timed at 55 minutes. The debriefing also indicated two questions that needed slight re-formulation, as they were ambiguous, and two sounded similar. The suggestions were considered and the questions were revised accordingly.

The interview with the last Subject Advisor (conducted the following day on a Saturday morning inside the researcher's car in a quiet basement car park of a mall), took 58 minutes, which worked out to an average of 54 minutes when the time of the other Subject Advisor was considered. Prior to the interview, the researcher explained the purpose of the pilot study and that it was a test of the instrument which would be used in a forthcoming study. A similar briefing was given to HoDs and teachers who completed the self-administered questionnaire.

The five teachers who completed the questionnaire completed it in an average of 36 minutes – the longest session lasted 46 minutes and the shortest 30 minutes. A simple questionnaire evaluation tool was developed. The teachers were requested to complete it after finishing the self-administered questionnaire (see Appendix H). Its purpose was

explained during the briefing session. Mainly, the evaluation tool was part of a plan to identify problems with the clarity of questions and to establish the average time it took to complete the questionnaire. The evaluation tool revealed that there were some problems with the formulation of three open-ended questions: they were somewhat repetitive. These comments were considered and the necessary changes were effected.

The outcome of the pilot testing indicated that the instruments could be used after minor fine-tuning of the identified questions in the interview guide, the FGD, and the questionnaire.

The pilot study taught the researcher that careful and meticulous planning was necessary for the study to be successful. Also, it mentally prepared him for potential challenges that could arise during the full-scale study. It was clear that the researcher would be at the mercy of the participants with regard to dates and time. Furthermore, the pilot study helped the researcher reflect on the possible appropriate sample size. The pilot study had sensitised the researcher not to be overly ambitious by aiming at a large sample – considering the travelling distance, time-constraints, financial implications and rural nature of the research site where the sampled schools were located. These lessons impacted, to a significant degree, on the final decision on the study design.

The aim for conducting the pilot study was multi-pronged. It was to: (i) check the validity and reliability of the closed- and open-ended questionnaires in terms of content, wording question ambiguity, bias and sequencing; (ii) determine the usability and effectiveness of the interview guide instruments in terms of content, wording question ambiguity, bias and sequencing; and (iii) remove any identified deficiencies in the instruments (Gumbo, 2015). The ultimate aim of the pilot study was to discover possible inadequacies, ambiguity, problems and challenges relating to all aspects of the research – in order to effect corrections accordingly (Hulley et al., 2011). Therefore, the findings of the pilot study are not reported in the main study, but only the lessons learned (Gumbo, 2015). The evaluation tool completed by the teachers, the interactions with the HoDs after the FGD and the Subject Advisors after the interviews helped refine the research instruments as a

result of making the necessary corrections.

The questionnaire items were tested for reliability and validity, through the commonly used techniques of Cronbach's alpha and factor analysis. Reliability is having the items meant to measure the same thing being consistent (Pallant, 2016). The benchmark value is 0.70, with an alpha equal to or higher than that preferred. In investigating reliability, close monitoring should be on items with negative inter-item correlation coefficients, or extremely low values (below 0.2) (Pallant, 2016). Such items are likely to be negatively worded or out of context to what is being measured by the rest of the items. The remedy is reverse coding and/or dropping the items from the scale. The results of the reliability test are presented in section 3.7.1.

3.5.3 Data Collection Methods

It was not only this study's research questions that guided the selection of the data-collection methods utilised. The mixed-methods approach adopted by this study was influential in selecting the data collection methods that will generate QUANT and QUAL data. What follows is a narrative on the methods used, the processes of data collection, and the challenges experienced.

3.5.3.1 Interviews

The process to eventually select the interviewees was fraught with challenges; challenges that contributed to the ultimate decision to discard the initial research site for the study – the CMC of a selected Education District. The researcher met with five Subject Advisors at the District Office, and explained the study and interview guide and processes that would unfold during interviews. The permission letter that requested them to be interviewed and to be recorded, was made available to them. The Subject Advisors asked for some clarity on certain aspects of the research – like how long the interviews would take and the issue of anonymity. They warned that they were quite busy with fieldwork/school visits and workshops. Arranging interview dates and times would be thus

affected. Subsequently, the dates and times were set for the interviews.

AS the dates approached the researcher called using the cellular Send Message Service (SMS) and WhatsApp Messenger (which offers cellular messaging and calling services), to remind the Subject Advisors – before driving 193 km to the Education District. Arriving at the interview site, the Subject Advisors could not be interviewed at the scheduled times; they had to attend to schools on certain urgent matters and training was taking place. This happened twice. After more than a month of trying to secure the interviews, the researcher gave up. It was similarly frustrating with regard to the arrangements with HoDs for FGD and the respondents, the teachers, for the completion of the self-administered questionnaire – as will be clarified in section 3.5.3.3. The research site had to be changed. Efforts were costing time and money and were contributing to researcher fatigue (Rimando et al., 2015).

After the researcher had secured a new research approval letter from the ECDoE to collect data in the new Education District, with similar characteristics to the discarded one, the new Education District Office was approached and the relevant District approval letter (see Appendix P) was issued. The researcher experienced similar challenges to the ones experienced at the initial research site, but they were more manageable. The Subject Advisors, especially, were difficult to organise – as they were involved in training and site visits. Likewise, the HoDs were also busy with moderation, supervision of the half-yearly examinations, marking, and other administrative duties – including compilation of subject portfolios. It was a similarly disappointing experience with the teachers when collecting the distributed self-administered questionnaires. After negotiating and re-negotiating dates and time schedules – the semi-structured interviews and FGD ensued.

From the numerous types of interviews, the semi-structured interview was selected because of the purpose of the study and the concurrent triangulation mixed-method research design adopted for the study. The semi-structured interview is located in the middle of structured and unstructured interviews and has a mix of more or less structured

questions (Merriam & Tisdell, 2016). The literature reveals there are numerous types – a brief annotated discussion thereon is presented in the following paragraphs.

Dakwa (2015) differentiates 12 types of interviews: QUAL research; informal conversational; the general interview guide approach; standardised open-ended; closed fixed-response; cultural; personal (structured); unstructured; focus group; in-depth; telephone; and internet interviews. Some authors (see Maree 2007; Babbie, 2010; Bryman, 2012) identify three major types of interviews: structured/closed; semi-structured; and unstructured. The semi-structured interview was adopted and implemented for this study.

As pointed out in section 3.4.3.1.1, the Subject Advisors were purposefully sampled for the in-depth face-to-face/individual interviews or personal interviews. The participants responded to a set of preset questions contained in the interview schedule (see Appendix E) that explained briefly the process of inquiry, the purpose of the study, issues of anonymity and confidentiality, and voluntary consent. The questions allowed participants to express themselves freely, facilitating in the process the solicitation of rich data on the focus phenomenon and helping to gather rich descriptive data relating to the main research question and specific research questions. The questions were also thematically relevant to the research theme – how integration of IK occurs in the IP school curriculum. Furthermore, the questions were formulated such that they promoted a positive interaction whereby, among other dynamics, the participants were motivated to talk about their experiences and feelings with regard to issues relevant to the study theme (Kvale, 1996). The interviews were an opportunity to gather data which would not be obtained by using other data-collection techniques like the self-administered questionnaire and document analysis adopted for this study (Cohen et al., 2000).

During the face-to-face verbal interaction between the Subject Advisors, their responses were recorded for later transcription (Rowley, 2012; Ary et al., 2014; Dakwa, 2015). Notes were taken on aspects to be followed-up or on unclear statements or important points

(Merriam & Tisdell, 2016). The initiation of the interviews was aimed at obtaining data relevant to the phenomenon under study (Cohen et al., 2011). To guard against the interviews degenerating into mere conversations and for purposes of obtaining research-specific information from the Subject Advisors, the interviews were guided by the objectives of this study (Powney & Watts, 2018). Brinkmann and Kvale (2015, p. 5) reiterate the difference between a conversation and an interview when they assert that a research interview “is a conversation that has a structure and a purpose”. The interviews were not formal meetings aimed at evaluating the Subject Advisors (Dakwa, 2015), but were conducted to elicit relevant information that would be useful for the study.

The five semi-structured interviews occurred over four weeks. The dates and time for the semi-structured interviews had to be re-scheduled after re-negotiation on several occasions due to planned and unplanned work commitments of the Subject Advisors. Two Subject Advisors were interviewed in one week on separate dates; and three over three weeks, with one interview per week.



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The researcher had to manage the interviewing process carefully to control the tempo and amount of response given by Subject Advisors and HoDs – depending on whether what was said was relevant to the question posed. The average time for the interviews with the Subject Advisors was 50 minutes. Three Subject Advisors were particularly detailed in their responses and had to be directed and controlled. Two Subject Advisors were brief in their responses and there were many moments of silence, with the researcher expecting more information to be provided. Probing and prompting had to be used to encourage discussion. On several occasions, the researcher had to pose probing questions that were completely different from those he had planned. The idea was to get as much data on their views as possible on how they integrated IK into their teaching, generally, and in the classrooms. They also had to be probed for the researcher to source information on how they monitored and supported the teachers when the teachers integrated. This information was critical for the study.

Babbie (2010) and Bryman (2012) note that interviews can be conducted variously –face-to-face, telephonically and via e-mail. As pointed out, the interviews in this study were conducted face-to-face. However, the researcher, where deemed necessary for clarity, asked follow-up questions via WhatsApp Messenger and SMS. This was not a haphazard exercise, but was guided by a rational and ordered plan (Dakwa, 2015), whereby the follow-up questions were carefully crafted after listening to the recordings and after reading the notes taken during the interviews and/or transcripts after transcription. The researcher used the same strategy for the FGD.

The *Focus Group Discussion data collection method* was also utilised in this study. It is also termed the focus group semi-structured interview or group interviewing (Rubin & Babbie, 2011): dynamic group discussions used to collect information (Harrell & Bradley, 2009). Primarily, the FGD differs from the individual interviews and questionnaire methods used for this study in that data collection “occurs and is facilitated in a group setting” (Stewart & Shamdasani, 2015, p. 17).



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After purposively selecting the 10 HoDs from the participating 20 schools, the researcher finally managed to meet the HoDs in two separate schools – after initial challenges over six weeks to get them together in one place. The study was explained, permission letters distributed, and logistics were discussed at the meetings. It was agreed that the venues would be two separate schools that were central to the two respective groups, and that would thus be easily accessible for everyone.

Later, on arrival at the two respective venues on the agreed upon dates, the researcher noted the difference in ambience at the two venues. While the first venue was quiet and the seating arrangements comfortable, the second venue was characterised by noise from nearby classrooms, which necessitated moving to a room further away from the noise. Although quieter there, the noise slightly affected the quality of the recordings, and the discussions went ahead, although the sitting arrangements were far from ideal.

With Creswell’s (2014) remark in mind that the administration of a focus group requires

skill from a researcher, not only to create a conducive environment for the participants to freely express themselves, but also to ensure that participants focus on the main topic under discussion – it was imperative that the researcher set ground rules. Moreover, because focus groups are dynamic (Maree, 2007), they can be time consuming if not administered properly (De Vos, Strydom, Fouché, & Delport, 2011). There was also the possibility that some participants would dominate discussions (Maree, 2007), making it necessary that the researcher explain the applicable ground rules before commencing. Furthermore, the researcher was very anxious about the quality of the recordings and so he explained that the participants should await their chance to speak while another participant was still speaking. He also stated that participants had to respect each other's views.

As the discussions evolved, the HoDs shared their views on issues pertaining to the integration of IK into the IP school curriculum; they listened to each other's views, refined their views, and supported or raised counter-claims on issues pertaining to the study phenomenon. The data generated were different from those collected through individual interviews because of the interactive element (Hennink, 2014). As in the case of individual Subject Advisors, probing was done when the researcher sensed there was something more to be learned (Merriam & Tisdell, 2016).

The group discussions process unfolded over two successive weeks: one group discussion per week. Like the interviews, the FGD with the HoDs followed a carefully planned sessions that were intended to gather data on the integration of IK in the IP school curriculum in a permissive and non-threatening environment (Krueger & Casey, 2009). The HoD permission letter (see Appendix L) explicitly referred to a choice the HoDs had regarding the space to be used for interviews. The FGD were deemed suitable and effective for this study as they focussed on the professional practices of HoDs – as they are curriculum supervisors and teachers in their own right (Barbour, 2008). In line with Niewenhuis and Smit (2012), the researcher ensured there was more than one focus group. The textual data collected emanated from two sets of five HoDs per focus group – ten HoDs in total. Also, the size of the respective groups met the criteria suggested by

Rubin and Babbie (2011) that a group could comprise 5 to 15 participants or 5 to 12 (Niewenhuis & Smit, 2012).

During the focus group discussion process, the experiences were similar, with responses to questions varying from participant to participant. There were some vocal HoDs and more subdued ones who had to be encouraged to share their views, meanings, perceptions and understandings on aspects like how the teachers were integrating IK into their teaching; the meaning of integration of IK into the IP school curriculum; and their role in and how they supported the teachers when they were integrating.

The interviews and group discussions that provided rich, detailed and comprehensive data on the subject matter (Gergen, 2017), were not the only data gathering tools used. The next section discusses the document analysis method blended with the processes that underpinned the analysis.

3.5.3.2 Document Analysis Method



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During document analysis, researchers examine public records, personal documents, physical evidence or artifacts (Bowen, 2009) – as well as published and unpublished documents, company reports, memoranda, agendas, administrative documents, letters, reports, e-mail messages, faxes, newspaper articles or any other documents connected to a particular study or study site (Maree, 2007). Silva (2012) classifies documents in three ways: (i) primary, secondary and tertiary documents; (ii) public and private documents, and (iii) solicited and unsolicited documents. Yin (2009) notes that all types of primary and secondary documents help us to understand the institutional cultures and climates in which they were produced and thus help contextualise the study phenomenon. Moreover, they are more economical than interviews time-wise and in financial terms (Babbie, 2010). Furthermore, they provide both quantitative information like statistics and qualitative information through analysing the data they contain (Silva, 2012). This information could be used by the researcher through analysing them – thus acquiring

knowledge in the process (Patton, 2002).

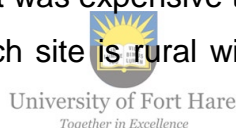
For this study, unsolicited documents – the support and monitoring tools of Subject Advisors and HoDs – were to be analysed, but the analysis did not occur as planned for reasons that will become clear under section 3.6.

Additionally, the researcher intended to examine available teachers' lesson plans, circulars and the monitoring and supervision records of the subject HoDs and Subject Advisors, and other relevant documents (Maree, 2007) relating to the integration of IK in the IP school curriculum. Document analysis aimed to complement themes that emanated from the interviews and questionnaires. The researcher established at the start of the study from the participant Subject Advisors and HoDs, and the respondents, the teachers – that these documents would be available and accessible. However, when requested during data collection, the researcher learned they were not available, as the participants and respondents did not have documents that reflected on the integration of IK. The teachers were not formally preparing and planning for IK integration lessons; and the Subject Advisors and HoDs did not have monitoring tools which had items that spoke to the integration of IK into the school curriculum. This matter is further explained in section 3.6.3, below.

As this study was a mixed-methods design, document analysis and interviews were not the only data gathering instruments the researcher used for data collection. Quantitatively, the researcher used the questionnaire. In *intermethod mixing*, questionnaires normally play an important role (Johnson & Turner, 2003). The processes and procedures characteristic of questionnaire usage in a study are discussed next.

3.5.3.3 Questionnaire

A questionnaire is “a self-report data collection instrument that is filled out by the research participants” that is constructed by a researcher (Johnson & Turner, 2003, p. 303) to collect QUAL and QUANT data (Maree, 2007). In this study, data were collected quantitatively from 67 out of 75 teacher-respondents who were purposively sampled, by means of a structured and standardised self-administered questionnaire – as the sample was, comparatively speaking, large for a small study conducted by a single researcher (Gray, 2009; Mentz, 2012). A questionnaire may be a written or electronic instrument that contains a series of pre-determined questions designed to measure a specific item or set of items that emerge from the research objectives (Babbie, 2010). There are several ways of administering questionnaires, and these include mailed/posted questionnaires, group-administered questionnaires, e-mail and internet questionnaires, and self-administered questionnaires (Mentz, 2012; Ary et al., 2014). The researcher used self-administered questionnaires for two reasons: (i) it was expensive to use postal questionnaires; and (ii) the geographic area of the research site is rural with an untrustworthy to non-existent postal system.



This study adopted the semi-structured questionnaire format from the three types of questionnaire formats – structured, semi-structured and unstructured. As pointed out, the researcher personally distributed the self-administered semi-structured questionnaires (see Appendix D). This study employed *intramethod mixing* for the questionnaire, that is, the questionnaire contained a mixture of completely open- and closed-ended items (Johnson & Turner, 2003). This is also called data triangulation (Tashakkori & Teddlie, 2003b). The questions allowed for both QUANT and QUAL data (through open-ended items) to be collected from teachers on aspects related to the integration of IK into the IP school curriculum. In addition, the mixing of questions facilitated the gathering of accurate and complete data for the study phenomenon (*Ibid.*). The questionnaire guaranteed respondent anonymity – allowing the respondents to express themselves openly (Babbie, 2010).

The process of distribution did not progress smoothly at the initial discarded research site as pointed out. A District Official invited the researcher to a principals' meeting. The idea behind attending the meeting was three-fold: to explain the study; to explain any ambiguous questions that usually lead to low returns due to unclear or ambiguous questions (Bryman, 2012); and to give the principals the questionnaires to distribute to the IP teachers at their respective schools. As indicated earlier, challenges led to the abandonment of the site.

Having received the necessary approval for the new site, the researcher decided to personally deliver the questionnaires to schools, where he made the necessary explanations. The dates for collection were arranged. On the days for collection, there were however challenges: some teachers had not completed them, others had misplaced the questionnaires or some had forgotten to complete them. Several trips were made to collect the questionnaires from the same schools – an exercise that proved costly in terms of time and financial resources. In one instance, a District Official who was concerned about the researcher's vehicle (which was unsuitable for the almost inaccessible rural roads), suggested that the researcher use e-mail to send questionnaires to five schools that were located far away. The schools were among those that had had connectivity and laptops. This arrangement helped greatly.

The intramethod mixing was advantageous for data collection for this study. It was simpler to process the responses from the closed questions; a tick or circle to a response allowed for quick data recording and analysis. The open-ended questions allowed the respondents to qualify and clarify responses (Mentz, 2012).

3.6 DATA ANALYSIS AND INTERPRETATION

In mixed-methods research, data analysis can occur at any stage of the data-collection process depending, among other factors, on the research design (Onwuegbuzie & Teddlie, 2003). As this study adopted a concurrent/parallel triangulation mixed-method

design, data analysis occurred after both QUANT and QUAL data were collected (*Ibid.*). Onwuegbuzie and Teddlie's (2003) seven-stage conceptualisation of mixed-methods data analysis, to a degree informed the QUANT and QUAL data analysis. The seven-stage data analysis was however not the only data analysing process that shaped the framework and parameter within which data were analysed.

Onwuegbuzie and Teddlie's (2003) seven-stage conceptualisation of mixed-methods data analysis was considered by the researcher – but was only partly adopted as it is particularly used in mixed-methods conversion designs and other designs. The design for this study was the concurrent triangulation mixed-methods design. The seven-stage conceptualisation of mixed-methods data analysis is as follows:

Stage 1 is data reduction where QUAL data are analysed via theme analysis or thematic coding, while QUANT data are analysed via descriptive statistics (*Ibid.*). This stage was considered in this study – as can be observed in sections 3.6.1 and 3.6.2 below.



Stage 2 has to do with the data display. In this study, tables and graphs to display the QUANT data were used. Qualitatively, *inter alia* matrices and lists were used to describe the QUAL data (Onwuegbuzie & Teddlie, 2003).

Stage 3 is data transformation, which occurs largely in conversion mixed-methods design. The textual data are converted into QUANT data, and QUANT data are transformed into QUAL data (*Ibid.*). This did not occur – as this was not a conversion mixed-methods design.

Stage 4 is data correlation. The term 'correlation' is used here to mean comparing the original QUAL data and the quantitised QUAL data to determine if the two sets reflect similar findings (Onwuegbuzie and Teddlie, 2003). No QUAL data were quantitised; the survey already contained QUANT data.

Stage 5 is data consolidation, which involves the combination of both sets to create a new set of data or variables. This is a process appropriate, if the purpose of the mixed-methods research is development (Greene et al., 1989, cited by Onwuegbuzie & Teddlie, 2003).


Stage 6 involves data comparison, where data from the QUAL and QUANT data sources are compared (Onwuegbuzie & Teddlie, 2003). This process was necessary before embarking on the final stage 7.

Stage 7 is data integration where data and interpretations are integrated into a coherent whole or reported into two separate sets (*Ibid.*). As pointed out, in this planned study data and interpretations were integrated into a coherent whole.

3.6.1 QUANT Data Analysis

The QUANT data, which are often presented in the form of responses to closed-ended questions, were analysed statistically to help answer the study's research question (Creswell, 2003). Once collected, coded and edited, the structured data were analysed using the computer software SPSS. The main purpose of statistical analysis was description and inference (De Vaus, 2001), and the analysis therefore began with descriptive analysis in order to present the basic features of the data. This was done by computing measures of central tendency (means, modes and medians), measures of dispersion (range, variance and standard deviations), as well as basic frequencies, proportions and cross tabulations. Chi-square tests were used to determine any statistically significant association between two categorical variables, such as academic qualifications or frequency of integrating. As well, the chi-square tests were to establish whether the relationship between categorical variables was not due just to chance (Welman, Kruger, & Mitchell, 2005). In order to draw conclusions from the sample statistics, some inferential statistical techniques and modeling were performed. This included correlational analysis using the Pearson product moment correlation (for interval or ratio scale variables), and the Spearman rank-order correlation (for ordinal scale variables). Further to correlational analysis, linear regression analysis enabled specification of some variables of interest as either the dependent or independent variables, and thus predicted the value of the specified outcome based on the values of one or more predictor variables (Welman, Kruger, & Mitchell, 2005).

Data were captured and coded into SPSS and the following tests were computed in line with the objectives of this study:

- *Descriptive statistics*: these took the form of frequency tables, measure of central tendency such as mean and mode, and measures of dispersion such as range. Variables such as demographics require viewing how many individuals fall into a particular category, and therefore univariate descriptive statistical analysis was done.
- *Bi-variate analysis*: relationships were tested between variables using techniques such as test for means (t-tests when the grouping variable is binary, otherwise Analysis of Variance (ANOVA) was done). On the other hand, correlations and chi-square tests of independence were conducted. It is imperative to note that with bi-variate analysis, the focus is on answering three questions (two when a nominal variable is involved):
 - ✓ Is there a relationship – answered by level of significance (p-value equal to or less than 0.05 signifies the presence of relationship).
 - ✓ The pattern of the relationship  is it a positive or negative relationship – answered only when ordinal and/or interval/ratio variables are measured. This is checked only when a relationship has been confirmed in the first question above. Nominal variables do not increase or decrease and by conceptualisation, the related tests such as Lambda, Phi and Cramer's V have coefficients that theoretically range from 0 – 1. On the other hand, the tests involving ordinal and/or interval/ratio data such as Somer's d; Gamma; correlation coefficients (Spearman Rho or Pearson) have values that theoretically range from -1 to +1, and therefore a pattern can be depicted.
 - ✓ Strength of the relationship – this is checked when a relationship has been established. The strength of the relationship is picked from the size of the coefficient measured.

The test variable in each case was a continuous variable – mainly from computed total scores. In statistical analysis, the best level of variable measurement is ratio and/or interval, followed by ordinal, and then nominal. Where possible (taking into account

Principal Component Factor analysis results and reliability scores), total scores were computed from scales in the questionnaire. The computed score variables, for example strength of teaching strategy, were then tested against different grouping categorical variables, to test whether the means vary between the categories. In addition, a Pearson Product correlation coefficient was possible among the total score variables, and was used to measure association between variables.

Regression analysis was not carried out as the Pearson Product correlation coefficient had helped to fully meet the research objectives.

3.6.2 QUAL Data Analysis

Qualitatively, the researcher followed the general analysis processes suggested in analysing interviewee responses: (a) data transcription; (b) identification and generation of patterns and themes; (c) linking themes to the conceptual or theoretical framework; and (d) analysing the data according to the conceptual or theoretical framework. The researcher continuously interacted with the data collected, listened to the recordings while driving from the interview sites, listened at home and at work, and listened carefully while transcribing. Outstanding data was collected in-between reading the transcripts and analysing the data, a process associated with fixed QUAL analysis (Richards & Richards, 1998; Sarantakos, 2005; Creswell, 2014). During analysis, the steps below were followed.

3.6.2.1 Unitising, Categorising and the Formation of Themes

This study implemented a triangulation concurrent mixed-methods approach and a constant comparative approach was used for qualitative data analysis. During data processing and analysis, various concepts were used – including data unitising, categorising, patterning and forming data themes. These concepts are explained as follows:

3.6.2.1.1 Coding and Unitising

Once all the data were put together through transcription, the approach of Parker (2007) was followed in terms of reading and re-reading the captured information, and writing down the emerging categories in a form of a paraphrased heading or label that describes what the participants were trying to say and what the researcher thought of as being important. The result is a set of codes that derive from a process of reducing the volume of information collected in the study through observations and interviews. The process, referred to as coding (Mertler, 2006) is critical in analysing qualitative information. The process allows researchers to identify and organise the data into important patterns and/or themes – and hence the coding of the collected data became the first step in qualitative data analysis. To enable smooth coding the key research questions of this study served as the stems from which themes branch-out and the interview sub-questions served as sub-stems from which also themes and sub-themes branched out. The coded and unitised data were further organised into important categories – as discussed in the sub-sections below.



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3.6.2.1.2 Categorisation of units

The broad categories are the research questions to be answered, and therefore responses from interviews were reviewed and words or phrases were allocated to a relevant category. The diversity of the words and/or phrases captured reflected the richness of the data and helped to reveal how different individuals perceive or regard the issue/topic at hand. Using research questions as guiding categories ensured that all set questions were answered from the gathered data – and it is easy to observe data saturation (when the same responses are received from participants). The process of categorisation is a major and critical component of qualitative data analysis (Chenail, 2008), where the researcher starts to realise meaning from the vast arrays of data collected. It is therefore imperative to realise such meaning in the context of the set objectives in this study, and this vindicates the use of research questions as overarching categories. When categorising the data, sometimes participant views were similar which resulted in the formation of one category, and when responses to similar questions

produced varying points of view multiple categories were identified. From the categories, themes were identified, which were then discussed fully relating to the literature reviewed, the study's theoretical framework and practice.

3.6.2.1.3 Themes

To better understand the data collected, themes were identified and the discussion revolves around those themes. Bryman (2012) defined a theme as a category identified by data analysts during the process of unitising and categorising the data. This study followed this process to obtain themes that are presented in Table 20, in chapter 4. A theme builds on codes identified in transcripts, after unitising and categorisation. Parker (2007) asserts that themes may include knowledge, beliefs, experiences, or opinions that participants were trying to communicate in response to the researcher's questions. On the other hand, Bryman (2012) further explains that when searching for themes, it is recommended that one should look out for, *inter alia*, the following things:



- Repetitions: topics that recur again and again.
- Indigenous typologies or categories: local expressions that are either unfamiliar or are used in an unfamiliar way.
- Transitions: the way in which topics shift in transcripts and other materials.
- Similarities and differences: exploring how interviewees might discuss a topic in different ways or differ from each other in certain ways, or exploring whole texts like transcripts and asking how they differ.

3.6.3 Analysing Data from the Document Analysis

The purpose of undertaking document analysis was to critically examine the documents as a triangulation tool to gain deeper understanding of the role the Subject Advisors and HoDs played in monitoring and supporting the Subject Advisors in relation to the integration of IK in the curriculum.

In the preliminary analysis, the researcher established that the monitoring tools that were eventually provided by the HoDs did not have any items that dealt with the integration of IK, and this was regarded as an aspect that would bolster the discussion on the emerging theme above – that the monitoring of HoDs is inadequate. The responses of the teachers in the questionnaire supported this finding.

This also happened with the Subject Advisors. Only one Subject Advisor provided the support and monitoring tool – even though all five undertook to provide them. After several follow-up calls, SMSs and WhatsApp messages, the Subject Advisors finally admitted that they did not have a tool that accommodates the support and monitoring of IK integration in the classrooms. It was not worthwhile to give a description of the tools provided by the HoDs and Subject Advisors, because the focus was on critically examining the tools – rather than merely describing them (Silva, 2012). Furthermore, the researcher could immediately deduce after reviewing them, that they were not all relevant to the objectives of this study.



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Teachers were reluctant from the onset to avail their lesson plans for scrutiny. Looking through the data from the documentary analysis of the documents availed, occurred simultaneously with analysis of the data from the interviews and from the open-ended questions in the questionnaire. This exercise brought clarity as to the quality and kind of role the Subject Advisors and HoDs played in the support and monitoring of the integration of IK into the curriculum. The pre-analysis process of the documentary analysis of data supported the teachers, Subject Advisors and HoDs responses on the issue of support and monitoring received (see chapters 4 and 5). The quality and kind of monitoring and support the Subject Advisors and HoDs provided on the integration of IK into the IP school curriculum, was inadequate to non-existent.

3.7 RESEARCH RIGOUR

3.7.1 Validity and Reliability

In this study, reliability – referring to the extent to which results of a study are consistent over time and to the consistency or dependability of the data collected in a study – was partly ensured by the nature of the mixed-methods approach that allowed the collection of data from multiple sources, and in so doing, effected triangulation (Fisher & Foreit, 2002). Questionnaires were used to collect data from teachers; semi-structured interviews with Subject Advisors were conducted; FGD with HoDs were held; and document analysis was performed.

The study data could also become unreliable when research participants did not understand the questions the way the researcher intended or when the items in the questionnaire did not have sufficient convergent validity. Therefore, the research instruments were pilot tested and the necessary changes were effected – before final application (Gray, 2009; Blaxter et al., 2010). As suggested above under pilot testing, the Cronbach's alpha was computed to test reliability, with the benchmark of 0.7 being the minimal acceptable reliability score. Cronbach's alpha is a test of instrument reliability, and was used to measure internal consistency of some items in the structured questionnaire. The pilot data showed that the instruments are reliable due to a high consistency score of greater than 0.7. By its nature, as a point of emphasis, the mixed-methods approach allowed the collection of data from multiple sources, so effecting triangulation and helping with reliability. Table 3.1 (below) shows the reliability tests and adjustment to the key scales in the instrument:

TABLE 3.1: Cronbach’s alpha reliability test results of questionnaire items

Scale	Cronbach’s Alpha- default	Adjustment (where Alpha is < 0.7)	Adjusted Cronbach’s Alpha
Teaching Strategy	0.814	-	-
Action toward integration	.680	Reverse coding of negatively worded items	.784
IK integration inclination	0.74	-	-
IK potential overall	0.87	-	-

For each scale, reliability was tested and Cronbach’s alpha was recorded (default), and when the Cronbach’s alpha was below the acceptable threshold, an inspection was done to check for reverse worded items and to reverse code them, and to consider dropping items that have negative correlation with the total item correlation (Pallant, 2016). The values in bold are the final reliability scores considered, and it can be observed that all are above 0.7.

Validity is the ability of a research study or instrument to measure that which it was intended to measure, and that which the researcher is interested in (Watson, 2015). Internal validity refers to the extent to which the research design enables the drawing of unambiguous conclusions from the results (De Vaus, 2001). This is more important in studies that seek to test cause-effect relationships – for example, determining if a particular intervention led to an observed change in a population of interest. This study was more descriptive than experimental, and was therefore not constrained by internal validity-related factors.

External validity refers to the extent to which the results from the study can be generalised beyond the study itself (De Vaus, 2001). Given the relatively small sample, this study was limited in the extent to which the findings could be generalised beyond the selected

Education District in the Eastern Cape Province. However, wider generalisations could still be attained in the long-term through replication of the study in other Education Districts and in regions around South Africa.

3.7.2 Study Credibility and Trustworthiness

Tuckett (2005) suggested that it is difficult to meet trustworthiness in studies that include a QUAL approach, and that maintaining rigour in such a study is a complex exercise. Rigour is located and associated with the politics and particularities of centres for research, and the subscription to following established methods and practices (Tuckett, *Ibid.*).

Regardless of the complexities characteristic of attaining credibility and trustworthiness, the researcher did the following to achieve credibility: (a) to facilitate triangulation, he used a combination of data-collection methods, in-depth individual interviews with Subject Advisors, FGD with HoDs, self-administered questionnaires, and document analysis; (b) he used audio recording during interviews and discussions to ensure accurate data capture; (c) he conducted limited member checking whereby the transcripts were given to one Subject Advisor and two HoDs to establish whether there are other possible interpretations (it became futile to try to meet the other Subject Advisors and HoDs to give them the transcripts); and (d) he used peer review where the supervisor and co-supervisor, two colleagues, and an academic friend, scrutinised and critiqued the research data and interpretations (see Tuckett, 2005). Due to financial constraints it was not possible to hire a professional transcriber to create verbatim transcripts to ensure accuracy, after which the researcher would have audited the transcripts against the original recordings by listening to them and reading the verbatim transcripts to ensure accurate representation of the data (*Ibid.*). However, the researcher exercised some rigour in ensuring accuracy during transcription. Transcribing oneself had its advantages. The recordings were first listened to immediately after an interview or discussion – to ensure familiarity with the content and to freshen and re-play the interview and discussion processes so that they could be properly assimilated. Auditing the transcripts against the

actual recordings was made easier by the fact that the researcher was already familiar with the content. Reading the transcripts verbatim and comparing and adding notes taken during the interview – also ensured accuracy and thus credibility.

3.8 ETHICAL CONSIDERATIONS

Research ethics govern how research is conducted in and disseminated by universities. They are considered important in that, *inter alia*, they support mutual respect and fairness between the researcher and participants; they hold the researcher accountable; they ensure that a study is trusted; and they support social and moral values such as the principle of doing no harm to others (Resnik, 2015). Wassenaar (2006) stretches the purpose of ethics by asserting they do not only protect the welfare of research participants, but also cover areas of scientific misconduct and plagiarism. Importantly, ethical issues are embedded in the research process from the initial development of the research questions through the actual interviews, FGD, through to transcriptions of recordings and analyses of collected data (Brinkmann & Kvale, 2017).

3.8.1 Briefly Contextualising Research Ethics

The attention to research ethics in the social sciences is what guided this study on the integration of IK in the school IP school curriculum in terms of considering several ethical research codes.

In research ethics are values and principles that guide researchers when they conduct research involving human participants – through all study stages up to the publication of results (Sotuku & Duku, 2015). There are numerous ethical codes/ethical values and principles that could be considered and adopted by a researcher. To illustrate, Sotuku and Duku (2015, p. 115) identify five major ethical values and principles: informed consent; beneficence (maximising benefits); non-maleficence (minimising harm); respect for anonymity and confidentiality; and respect for privacy. Christians (2005) includes

deception and accuracy, while Resnik (2015, unpagged) provides a comprehensive list of 14 ethical principles that will not be listed here. The following narrative outlines how the researcher considered the research ethics and principles in this study.

3.8.2 Ethics Considered by this Study

The researcher adhered to several ethical considerations. First, as pointed out, to take care of the issue of “gatekeeping” (Ogletree & Kawulich, 2012, p. 64), the letter written by the Supervisor and Co-supervisor was used to seek permission from the management of the ECDoE to access the research site, the selected Education District, and the schools with an Intermediate Phase. Included in the letter was an explanation about the study, and its purpose and duration. After permission was granted, the researcher made arrangements with District management to provide directions to identified schools, to advise on the best possible way to contact the teachers, subject HoDs and the Subject Advisors. The researcher also abided with the conditions of the ECDoE's research guidelines and rules contained in their research approval letter (see Appendix O) – for those undertaking research at its sites.



In addition, the researcher complied with the University of Fort Hare's Ethics and Higher Degrees Committee research ethical codes, protocols, and guidelines (see Appendix M). Moreover, the researcher abided by ethical considerations contained in the Faculty of Education Handbook of Post-Graduate Qualification Policies and Procedures – to ensure that individual rights of participants/respondents were not infringed upon (Sieber, 1998).

The researcher also strove to maintain honesty and integrity by avoiding, at all costs, scientific misconduct and plagiarism. Plagiarism was avoided by a rigorous acknowledgement of sources (Garner & Ryen, 2012). Furthermore, data were accurately reported and not fabricated (Christians, 2005).

Lastly, the researcher considered the ethical requirement of voluntary informed consent. The nature of this study, its purpose, and its educational benefits were clearly explained

to all participants. Participants were informed that they were free to withdraw and that they participated voluntarily (Kvale, 1996; Sieber, 1998). In addition, participants were assured that their identities would be kept confidential in order to protect their privacy and anonymity (Kvale, 1996; Sieber, 1998; Gomm, 2008; Yin, 2016).

3.9 SUMMARY

This chapter discussed the technical, methodological and design issues pertinent to the study on the integration of IK into the IP school curriculum in a selected Education District in the Eastern Cape Province, South Africa. Paradigms and their relevance to the study were examined and the principles of postpositivism and its justification for the study, were explored. Additionally, the mixed-methods approach and the concurrent triangulation mixed-methods design used in this study were described and discussed and their relevance to the study explained. Moreover, this chapter described the target population, and sample and sampling techniques used in the study. The chapter also elucidated the four data-collection methods – semi-structured interviews, FGD, document analysis and questionnaires – that were used for data collection and justified how the validity of the research instruments and data were safeguarded. Furthermore, the chapter discussed issues of reliability and trustworthiness, mixed-methods data analysis, and ethical values and principles.

The following chapter covers data presentation, analysis and interpretation.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 INTRODUCTION

This chapter adheres to the prescripts and protocols of the mixed-methods approach and concurrent/parallel triangulation mixed-methods design adopted and employed by this study – in presenting, analysing and interpreting concurrently the QUANT and QUAL data collected for this study.

Data presented herein follow the general research questions – in various sections. The first section deals with the biographical and demographical profile of the participants and with how teachers integrate IK into the IP school curriculum; the second section is on what views the IP school teachers have on the integration of IKS into the school curriculum. The last section considers what role HoDs and Subject Advisors play in supporting and monitoring the integration of IKS in the IP school curriculum.



As per the concurrent/parallel protocols, the QUANT data and QUAL data are analysed and presented simultaneously.

4.1 DEMOGRAPHICS OF THE SAMPLE

The study sample comprised 67 teachers who answered the questionnaire and 15 participants in the form of ten HODs and five Subject Advisors. More details on each group of participants are presented below.

4.1.1 Profile of the Teacher Respondents

Sixty seven respondents participated in the survey: 39 females and 28 males. These were teachers who taught multi-grade classes and multi-subjects in the IP and

Foundation Phase and/or Senior Phase. They were vital to the study as they were supposed to be the direct and practical implementers of school curricular policies, and were consequently the ones that were perceived to be integrating IK into authentic classroom activities. They had the requisite experience and were seen to possess rich data vital for this study. Figure 4.1a (below) presents the demographic statistics of the teachers' sample.

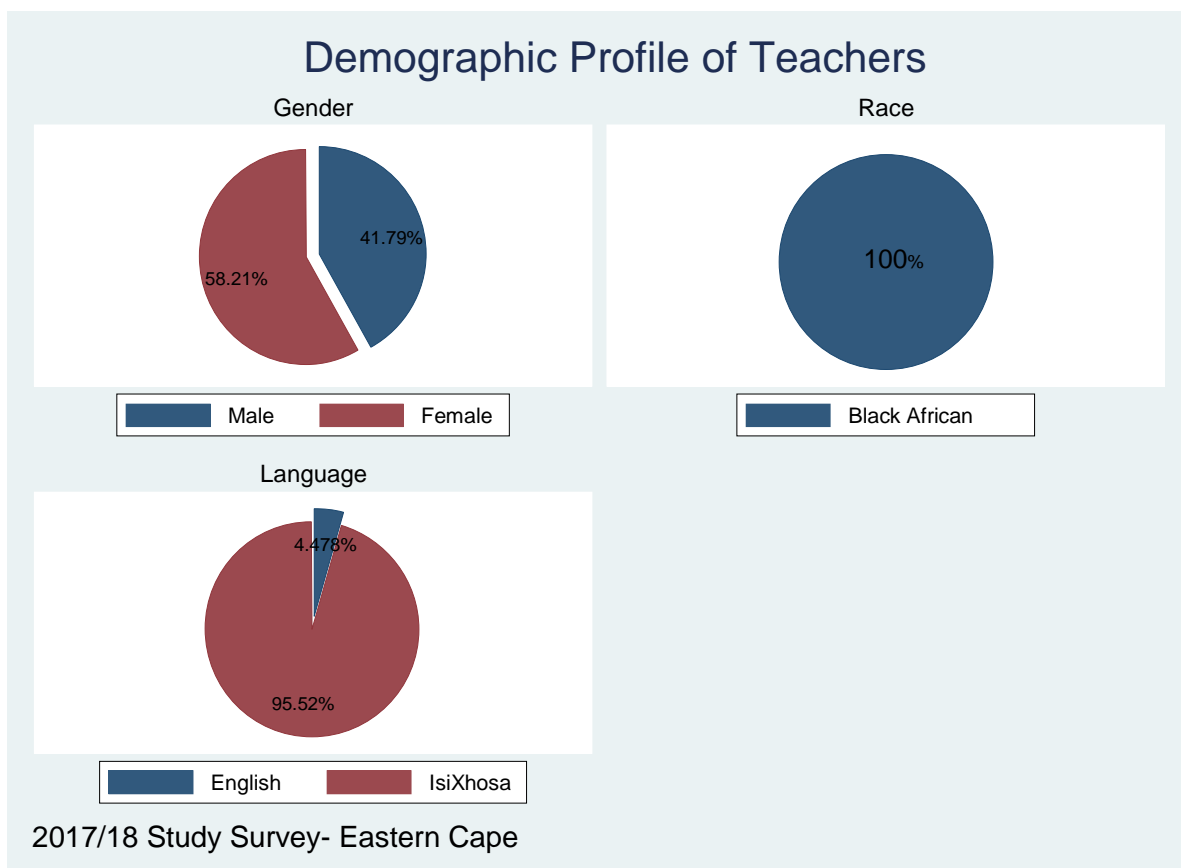


Figure 4.1a: Demographic profile of surveyed teachers

Figure 4.1a shows the demographic profile of the respondents, and the variable categories include: gender, race, and language. Based on the gender category, there were more female teachers than male teachers. The respondents of this study were all black Africans, and more than 95% were Xhosa speaking – while the rest were English speakers.

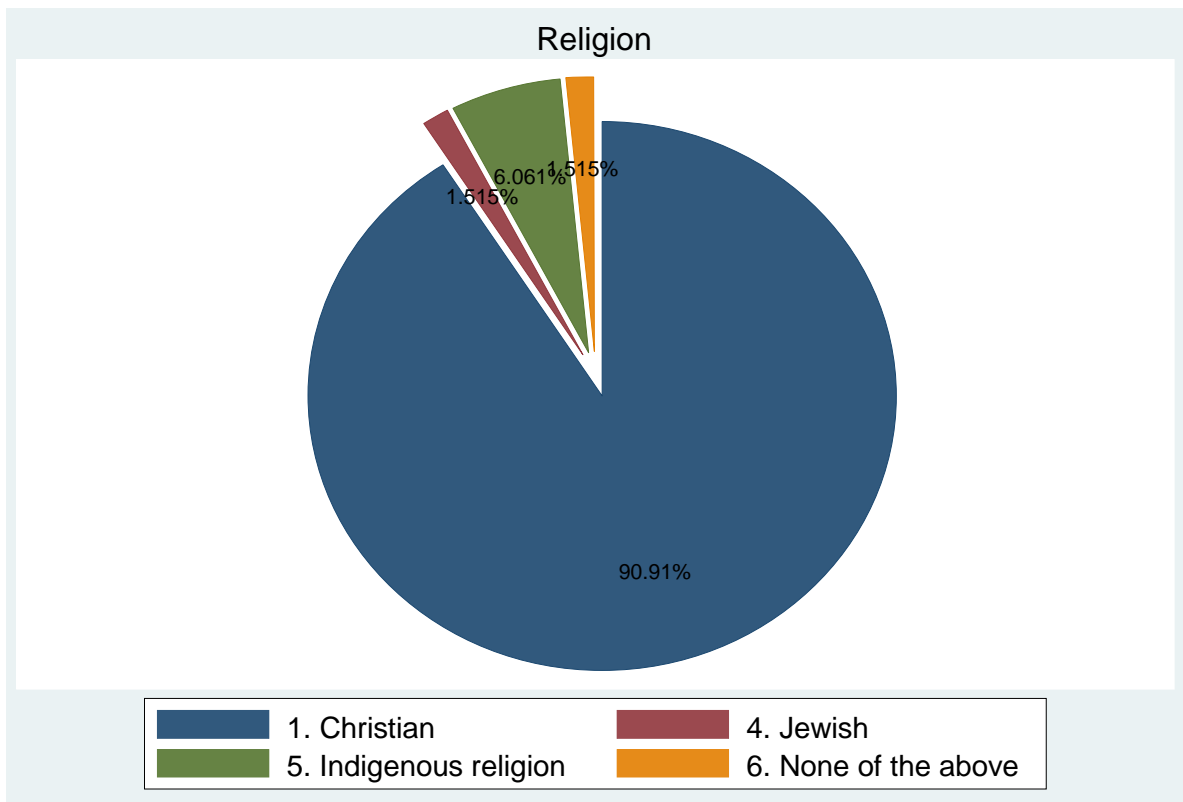


Figure 4.1b: Religion of teachers



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Figure 4.1b (above) reviews the religions of the teachers, and as shown by the statistics most teachers were Christians (accounting for more than 90%), while a small number of respondent teachers followed an indigenous religion, followed by the Jewish religion and the fewest belonged to none of these religions.

Teachers' teaching profile and qualifications are graphically depicted in Figure 4.2 (below):

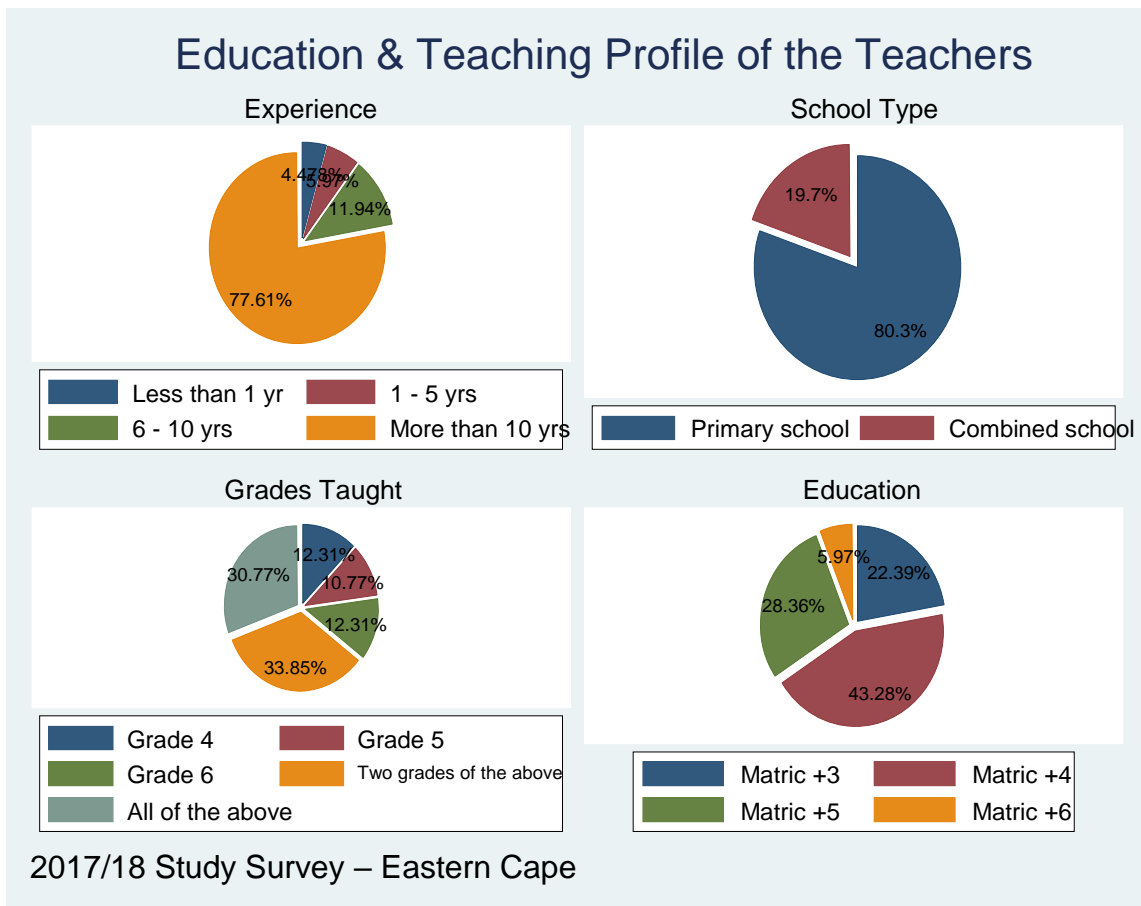


Figure 4.2: Education and teaching profile of the teachers

The educational level category was split into four levels: teachers with matric plus 4 years were more numerous than those with 3, 5, and 6 years of training. Most of the teachers had more than 10 years of experience. Primary schools accounted for a greater proportion of the teachers than combined schools, and most of these teachers taught two grades of either grade 4, 5, or 6, followed by those who taught all the grades – while others taught only one grade.

4.1.2. Profile of HODs and Subject Advisor Participants

For the FGD, 10 HoDs were sampled who were divided into two groups of five each. Five Subject Advisors participated in face-to-face interviews. As with the teacher respondents pointed out earlier, these informants were equally critical to the study, as they were the direct interpreters and implementers of the curriculum – and moreover they advised on the practice thereof in the classroom.

TABLE 4.1: Professional and academic profiles of HoDs and Subject Advisors

Participant	Gender	Age	Language	Academic qualification	Professional qualification	Teacher experience	HOD/SA experience
HOD	Females: 4 Males: 6	Mean: 36 Max: 64 Min: 30	IsiXhosa: 5 English: 2 Afrikaans: 1 Two+: 2	Matric: 5 Bachelor: 5	Yes - all	Mean: 17 Max: 33 Min: 4	Mean: 5 Max: 9 Min: 1
SA	Females: 4 Male: 1	Mean: 52 Max: 58 Min: 44	IsiXhosa: 4 Afrikaans: 1	Bachelor: 3 (one in commerce) Masters: 3	Yes - all	Mean: 22 Max: 28 Min: 12	Mean: 7 Max: 15 Min: 8 months

The sections below display concurrently the quantitative and qualitative result per objective. The views of HoDs and Subject Advisors are captured in QUAL form, while those of teachers are presented quantitatively. The identification of themes is presented in Appendix A.

4.2 HOW TEACHERS INTEGRATE IK INTO THE SCHOOL CURRICULUM

Overall there is agreement, in that teachers are not really integrating IK into the school curriculum. Where it is occurring, it is done unknowingly. One subject HoD said that:

... I don't think they do it consciously or deliberately, as I believe they have never had any training on integration of indigenous knowledge in the curriculum before. Myself too, as a teacher, I don't have formal training, but I do integrate the knowledge of learners from their communities with what is being taught ... (HOD3/FGD Dataset #1).

This was corroborated by Subject Advisors, where one stated:

... Teachers don't necessarily do this consciously. They may not know that what they do is integrating the little [amount of] indigenous knowledge in the textbook. But when reflecting now, because of these questions and your explanation of your study, I think they do. Myself – I also think I've been doing it unconsciously ... (Subject Advisor #2/Interview Dataset).

Another added that:

... they do integrate a little bit, because some themes and topics do have examples of IK – especially in creative arts ... (Subject Advisor #5/Interview Dataset).

The same Subject Advisor added that:

... They don't do much; they don't even really understand how to impart knowledge using the indigenous knowledge, because they take it as something they already know – so there is no need to apply it in teaching. They take it carelessly. They do not plan for it; they do not prepare for integration. To them, it seems that integration of indigenous knowledge is not important; it does not carry weight in their teaching or in the curriculum generally. They have an attitude that it does not matter whether learners know [about] it or not – the learners will proceed anyway. I can say [that] indigenous knowledge policy is not implemented ... (Subject Advisor #5/Interview Dataset).

However, over 65% of teachers said they do integrate IK into their lessons, while 34.4% do not. For those that integrate it, 46.2% do so every day, 18.5% once a week, 7.7% once a month, and 27.7% rarely. The anomaly in the results between teachers and the HoDs and Subject Advisors is that, in general, a theme emerged that the HoDs and Subject Advisors are unaware of how teachers integrate – as most do not visit classes. One of the HoDs said that:

... [I have] no training on supporting and monitoring of indigenous knowledge; no proper understanding of indigenous knowledge and how to implement integration ... (HOD/FGD Dataset #1).

All this points to a lack of understanding and capacitation in terms of overseeing teachers regarding IK integration. In this regard, whatever teachers do, that is what happens – as advisors and HoDs are generally unaware and seem not keen to oversee integration, as they argued they are not trained, and even the teachers are not trained.

Emerging themes from the FGDs with the HoDs and from the interviews with the Subject Advisors are reflected in Table 4.2 below.

TABLE 4.2: Emerging Themes from Interviews with HoDs and Subject Advisors

HOW TEACHERS INTEGRATE IKS IN THE SCHOOL CURRICULUM
Based on your experience, explain what teachers under your supervision do when they integrate IK in their teaching?
<ul style="list-style-type: none"> • Subject advisors are unaware how the teachers integrate – as most do not visit classes • HoDs believe it is happening mainly through excursions and sports, themes, and projects • Teachers who integrate are unsure about it and have no lesson planning or lesson preparation • Those who integrate, do it mostly through homework, assignments, themes, and projects
Describe the challenges the teachers have when integrating IK.
<ul style="list-style-type: none"> • The teachers mainly face challenges of lack of knowledge/training, resource constraints and limited documentation on IK, negative attitudes, and religiosity (conflict of Christian values with IK values) • Limited IK textbook content and resources due to colonialism and apartheid • Many challenges impede proper integration and prospects for integration • Space for IK in the curriculum exists, because it has benefits – but it is not integrated
How do you usually advise teachers on integration?
<ul style="list-style-type: none"> • Currently not much advice occurs as SA and HoDs are not trained or do not have an understanding of the importance of IK • Teamwork and reading widely is key to successful integration – with no focus on isolated subjects or subject specialisation or working in silos • More indigenous language teachers need to be employed • IK needs to be integrated throughout the lesson: introduction to assessment
Frequency of use of IK by teachers during lessons.
<ul style="list-style-type: none"> • More erratic and unknown
What teaching methods would you suggest to integrate IK into the Intermediate Phase school curriculum?
<ul style="list-style-type: none"> ▪ Diverse techniques have been identified, but no one is unique and questions and answering is popular

Integration of IK is not happening fully in schools; some teachers are integrating and others not. Based on the teacher survey, 65.6% say they do integrate. From the monitoring side by HoDs and Subject Advisors – HoDs believe integration is happening (although to a smaller scale) mainly through excursions and sports,

themes, and projects. On the other hand, Subject Advisors are unaware of how the teachers integrate, as most do not visit classes. Even though the QUANT data points most teachers integrating IK, the QUAL component provides a clearer picture on the quality of integration, as teachers who integrate are believed to be unsure about it, and have no lesson planning or lesson preparations. In addition, QUAL data reveal that those who integrate – do it through homework, assignments, themes, and projects.

Based on the responses from teachers – 63³ out of 67 teachers responded to the question of whether they are aware that the CAPS curriculum allows for integrating IK, with 61.9% saying yes, and the remainder saying no. This means that the argument by the Subject Advisors and HoDs that, currently, IK integration is generally unknown – does not concur with the teachers' position on IK integration. However, the fact that IK integration is erratic is corroborated by a significant number of teachers saying they do not integrate.



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Figure 4.3 (below) depicts, as a graphical display, the knowledge of CAPS and the frequency of integration of IK by teachers – as per the survey response of teachers.

³ Where there is an apparent discrepancy between numbers of teachers, i.e. total number of respondents vis-à-vis the actual number that responded, it is because some teachers did not respond to a particular item.

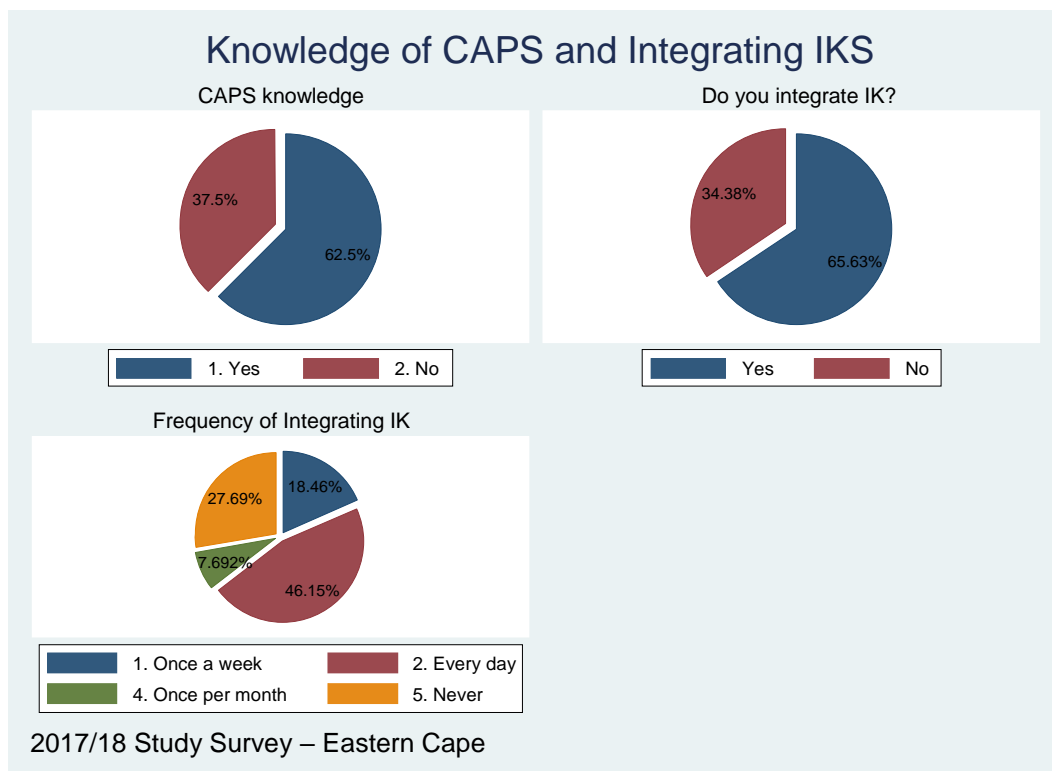


Figure 4.3: Knowledge of CAPS statement on integration of IK and frequency of integration by teachers



According to the information presented by Subject Advisors and HoDs, currently IK integration is more erratic and unknown. The QUANT data reveal a similar trend, with 46% of teachers integrating IK every day. About 28% never integrate, while 18.5% do so once a week – and 7.7% only once a month. Indeed, integration is low and when it happens it is erratic.

Even though the Subject Advisors, HoDs and teachers understand the notion of IK integration and its significance, teachers openly point out that there is no monitoring. This was pointed by out by some Subject Advisors, who noted that:

... I do not attend a teachers' classroom to see how they present lessons, even though I know it is my responsibility – due to time constraints and administrative burdens... (Subject Advisor #1/Interview Dataset)

... [I attend] just at times. Not frequently though. It's part of my job to do so, but I can't because of the circumstances (Subject Advisor #2/Interview Dataset)

This is also consistent with the assertion of HoDs that there are no tools in place to help with monitoring:

... I have to be honest here. I am not sure that we really do monitor integration, but colleagues from other schools may differ. We don't have what I think is a tool to monitor indigenous knowledge really (HOD1/FGD Dataset #2)

Furthermore, the SAs and the HoDs lack the skills and training needed to monitor IK implementation:

... I will emphasise that as teachers and HoDs we must be empowered – but the Subject Advisors also need to be skilled and trained to support and monitor integration effectively (HOD4/FGD Dataset #2).

The results from QUANT show that teachers that integrate IK every day (46.2%) predominate, followed by those who integrate once a week (18.5%) – as compared to those who never integrate (27.7%). It is evident that Subject Advisors and HoDs do not attend teachers' classes as they teach, to monitor and evaluate integration of IK, as they feel unprepared to do so due to lack of training and they are overwhelmed by their workload. They said:

... I was never exposed to it myself. It was never emphasised in my training and experience as a teacher. I didn't even know or think how it can be used in my subjects English and Afrikaans – until now (Subject Advisor #1/Interview Dataset).

...I never thought about this. I also never was exposed to this integration per se – but maybe I know it now that I think about it. The Department has never told us or emphasised integrating this knowledge per se, but my formal training and studies have exposed me to integration generally (Subject Advisor #3/Interview Dataset).

The Subject advisors also believed that, as teachers are not trained to handle the integration of IK, just like them – there is really no need to do any monitoring:

... I was never trained, as I've said, although maybe I did it unknowingly. I'm sure other teachers were also never trained on integration in general as I've said. I'm sure teachers like myself need training. It may take the form of workshops and training tools ... (Subject Advisor #2/Interview Dataset).

As a result, they cannot assess and provide informed comment on how teachers integrate IKS into class. This opens a loophole for non-integration by teachers – as they cannot be held accountable. However, the study managed to remind us about and drive the need to integrate – as one Subject Advisor said that:

... I may not be properly trained or advise my teachers about it, but I am not against the integration of it. It's just that I have not taken it, you know, seriously, or thought about it ... (Subject Advisor #2/Interview Dataset).



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Considering the teaching strategies to integrate IK into lessons, Table 4.3 (below) summarises the responses on a set of questions. QUAL data showed that diverse techniques have been identified; no one is particularly unique, but the question and answer method is popular.

Most of the teachers agreed to four main strategies – as indicated in Table 4.3, below. The highest had 76.6% (encouragement of learners to make connection with IK and class material) of the teachers agreeing, and this was followed by 58.5% (sharing of material with fellow teachers), 57.1% (consult fellow teachers), and then 55.4% (drawing material from other subjects with relevant content). The other strategies are not common, especially co-teaching – with only 24.6% agreeing.

TABLE 4.3: IK integration strategies used by teachers

Integration strategy	Cumulative Agree	Neutral	Cumulative Disagree
You encourage your learners to always try to make a connection between IK and what is being taught in your subject and other subjects	76.6	41.1	9.4
You share your lesson material and plans with other teachers	58.5	7.7	33.8
You consult formally or informally with other teachers about your teaching or lessons	57.1	15.9	27
You draw from other subjects' relevant content that will enhance your lessons	55.4	12.3	32.3
You organise your lesson without considering other subjects	35.4	13.8	50.8
You arrange with other teachers of other learning areas, to teach on the same day topics related to your lesson topic	29.7	21.9	48.4
You plan your lessons jointly with another teacher whose learning area is related to your learning area	27.7	20	52.3
Your school makes time in the timetable to teach themes or topics that are common in different subjects/learning areas	26.6	15.6	57.9
You teach some common topics of different learning areas as a team	24.6	16.9	58.4

These are therefore the most popular (not the only) strategies used by teachers in terms of integrating IK into lessons. On the other hand, partnership with stakeholders who have a propensity to enhance IK integration is limited to only collaborating with fellow teachers. In this regard, evidence from an analysis of opinions from Subject Advisors and HoDs suggests that a lack of advice to teachers from HoDs and Subject Advisors is a result of the lack of partnerships and coordination with all stakeholders. Teachers assert that most learners live with their grandparents – but it is still challenging to integrate IK because there is no formal intuition of IK transfer, as there are no established systems to support knowledge-sharing beyond classrooms. The HoDs believe strongly in drawing from other subjects' relevant content that will then

enhance the lessons. This is rated highly by teachers at 55.4% agreement, with one HoD pointing out that:

... using subject matter from other subjects is integrating ... (HOD1/FGD Dataset #1)

In addition, QUAL results show that the Subject Advisors consider strategies of integration through homework, assignments, having themes and through projects. One retorted that:

... I am thinking of patterns when they are teaching the geometry part, even data handling, because if I can go to data handling, if they are using probability there – they will be using the playing cards they usually use in their home. In geometry, if they are dealing with a circle, for example, they can link that because most things are there in their homes like the rondavels, some kraals, beads ... (Subject Advisor #4/Interview Dataset).



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QUAL data reveal that currently not much advising is taking place – as SA and HoDs are not trained or have not understood the importance of IK. This is despite the realisation that teachers face several challenges in integrating IK and they would need good support. The teachers mainly face challenges in terms of lack of knowledge (how to integrate), resource constraints, negative attitudes, and religiosity (conflict of Christian values versus IK values).

In terms of limited IK textbook content and IK resources due to colonialism and apartheid, to overcome these challenges to IK integration, QUAL data reveal that teachers must consider teamwork and not work in silos and must read widely in order to be successful with integration. HoDs had this to say:

... Older teachers are more rigid while the newer inexperienced ones are more flexible – but lack the experience and guidance and training, resulting in a lack of enthusiasm to integrate ... (HOD3/FGD #1 Dataset).

In addition there is limited material to support the teachers, and where they are available such as CAPS documents – they are reported to be vague regarding IK integration:

... We need those resources. It's not enough to see shapes for example in a textbook rather than seeing the shapes in front of you, where you can say this is the object or resource we're talking about. There are not enough indigenous resources and the textbooks do not have enough on indigenous knowledge ... (HOD3/FGD Dataset #2).

The study checked how teachers can be assisted to successfully integrate IK into their subjects – and various responses were received. Through content analysis, the options can be summarised as follows:

TABLE 4.4: Strategies to assist teachers with IK Integration

Strategy	N
Workshops and training	36
Material development and simplification	13
Reduced work-load and disregard multi-grading (including smaller classes), and admin work	9
Enhanced teacher training	8
Mentoring subject advisors, HODs, district support	8
Admin work reduced	5
Consulting with colleagues	3
Partnership with parents/guardians through <i>inter alia</i> homework	2
Monitoring and evaluation	2
Legislation changes	2
Themes linked to cultural relevance	2

One HoD suggested the following:

...Somebody that is doing well with integration with IK and the implementation of IKS can mentor and work with those that are struggling with it. Even if it's a teacher sitting with their peer, and avoiding the silo mentality, teaching in isolation ... (HOD3/FGD Dataset #1).

On the other hand, one Subject Advisor supported that, adding that:

... [teachers] have to know that they must learn from each other, have team teaching or brainstorming sessions on how to integrate ... (Subject Advisor #2/Interview Dataset).

This is in line with what teachers say with regard to “Consulting with colleagues” and “partnership with parents/guardians through homework” – as displayed in Table 4.4 (above). Even though HODs and SAs did not specifically mention training, which tops the list provided by teachers (36 teachers mentioned it) – they mentioned it several times in other questions (see, for example, Section 4.4, below).



The study asked teachers to rate the frequency of actions taking place during their lessons, with regard to IK integration. It is not a judgement of the quality of these actions – but just how frequently they happen. The figures below (Figure 4.4a) show the results graphically:

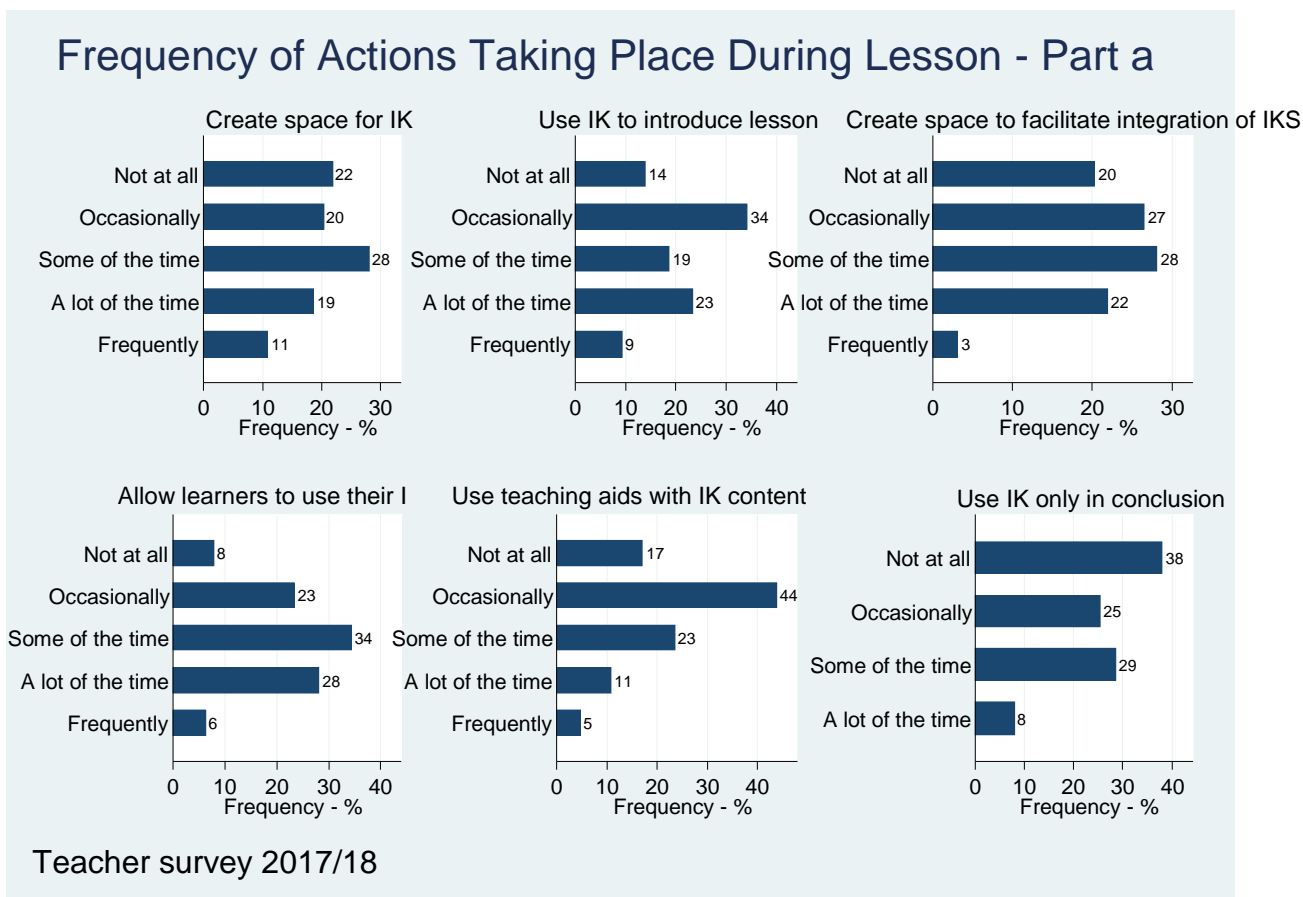


Figure 4.4a: Actions taken by teachers when integrating IK during lessons

Figure 4.4a (above) shows that very seldom do teachers take these actions, and overall most of the actions are not implemented at all, and occasionally in combination. In all cases, except for creating space for IK when planning a lesson, less than 10% of teachers take these actions frequently. One Subject Advisor indicated that integration can be done during any stage of the lesson:

... integration can be used anywhere during the lesson presentation, depending on the topic and lesson objectives ... usually in the introduction part - making examples during introductions ... (Subject Advisor #3/Interview Dataset).

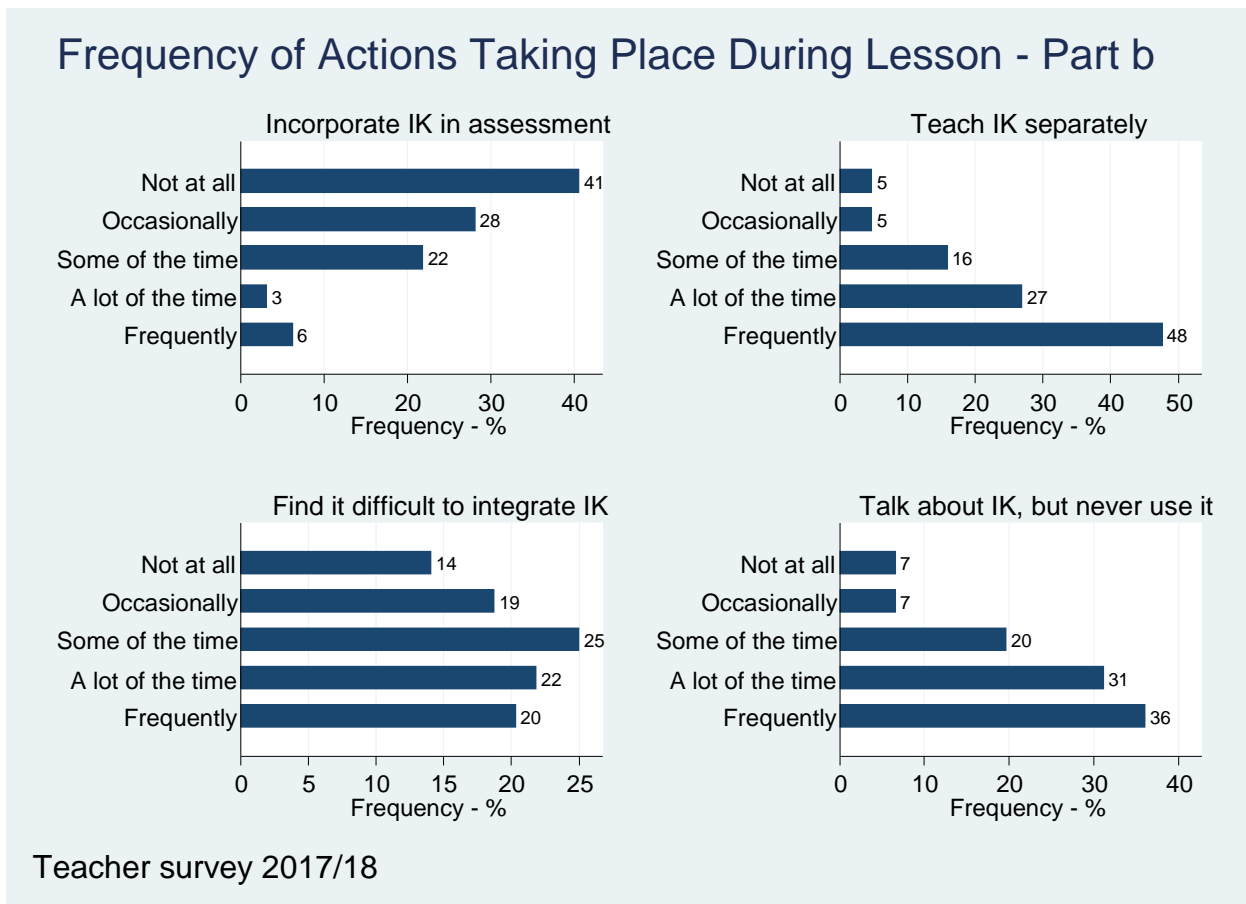


Figure 4.4b: Actions taken by teachers when integrating IK during the lessons

Most teachers do not incorporate IK into assessments (41% said not at all) – while 28% do so occasionally, with only 6% doing so frequently. One HoD said that:

...I do not check necessary for integration of indigenous knowledge [during assessment], but the lessons will show when there were elements of indigenous knowledge. As somebody said, it is a ‘hit n miss affair’ with integration to be honest ... (HOD1/FGD Dataset #1).

The latter part of the statement is corroborated by QUANT results in figure 4.4b above, where the highest proportion of teachers (36%) frequently talk about IK but never use it in class, while 31% use it a lot of the time and talk about it but never use it (accumulatively 67%). This indicates that awareness is there but implementation is limited – which could be due to time constraints, work overload, limited resources and

probably a lack of monitoring and supervision as the HoDs and Subject Advisors are not capacitated in that regard.

On the other hand, 48% of the teachers do teach IK separately from other content – with an additional 27% doing so a lot of the time. This implies that there is no integration among most of the teachers. Most teachers find it difficult to integrate IK into their lessons, with 20% finding it frequently difficult, 22% a lot of the time and 25% some of the time. The teachers confirm what the Subject Advisors and HoDs have said that usually IK is talked about, but is not implemented. On the other hand, information from the Subject Advisors and the HoDs suggests that teachers do not believe that diverse teaching techniques are crucial in IK integration. They believe that efficiency is key. That is, teachers do not support of big classes and multi-grade classes – as they do not allow flexibility. The argument is that teachers advocate a reduced work load and do not want multi-grade classes (including smaller classes), and admin work. It is also imperative to also note here that a theme emerged from interviews that diverse techniques exist – no one is unique, but question and answer is a key strategy.



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To better understand the strategies used by teachers, factor analysis was used to identify sub-groupings of the nine items. Before factor analysis was done, the scale was tested for reliability and a Cronbach's alpha of $0.906 > 0.70$ was obtained – implying the items are measuring the same thing (testing teaching strategy). The total strategy score variable (where higher values indicate those who frequently apply the strategies) was testing for mean differences across different categories of grouping variables such as teacher experience and gender of teacher.

The results reveal that teachers who have less than a year of experience, have a significantly lower teaching strategy score (they are weak in teaching strategies) compared to those who have 1-5 years' experience. The other categories are not statistically significantly different from each other – implying that the differences observed are due to chance and do not represent what can be observed in the population from which this sample was drawn. The differences are only true for this sample. On the same note, Subject Advisors and HoDs point out that teachers believe that IK integration is an added burden, but that:

...Younger teachers can be keener with proper training, resource allocation, reduction of workload and paper-work, and clear guidelines from the Department ... (HOD2/FGD Dataset #1).

In general, teachers feel they are able to fully cooperate if the curriculum policy, CAPS (that propagates IK integration) is fully instituted, if it clearly clarifies the 'what' and 'how' of IK integration, and if it is properly institutionalised – and when Subject Advisors and HoDs are also able to provide much needed support. In addition, the Subject Advisors and HoDs are optimistic that if they receive training they will be able to effectively support and monitor IK integration and be able to make teachers accountable.

This study tested whether teaching strategy strength differs across gender in teachers. The mean scores for the teaching strategy total score show males have a slightly higher mean score (27.07) compared to females (25.74). However, the difference in means is not statistically significant based on the t-test of independent variables.

The sample was drawn from two types of schools – primary schools and combined schools. The study tested whether teaching strategy depends on the type of school. The independent samples' t-test was conducted. The results show that primary school-based teachers scored on average 27.31, meaning that they have great teaching strength in strategies than their combined school counterparts – who scored, on average, 21.25. The mean difference of 6.058 was tested to determine whether it is statistically significant or only due to chance. Based on Levene's test, F is small (smaller than 2) and statistically insignificant ($p\text{-value} = 0.198 > 0.05$), and we therefore cannot reject the null hypothesis that equal variances must be assumed. The t is larger ($2.215 > 2$) and statistically significant ($p\text{-value} = 0.030 < 0.05$), meaning that the difference in the mean observed teaching strategy of 6.058 is statistically significant, and not due to chance. Indeed, teachers who are in primary schools have a higher score for teaching strategy (they implement most of the strategies identified in the scale) compared to those in combined schools. There are many reasons for this. One could be that in combined schools it is difficult to consult with others, the culture of

teamwork may not easily exist – and multi-grade teaching is highly probable, which overburdens the teachers. The interviews with HoDs and Subject Advisors indicated that teachers often face administrative burdens and teach multi-grade classes, which may be common in combined schools:

... I think the number of children in a class as well also plays a role in the amount of knowledge you can actually pass. Because you can't sit individually with them as they are many – that's also a challenge ... (HOD4/FGD Dataset #1).

... they don't know that we're sitting with classes of 36 children and more ... (HOD2/FGD Dataset #1).

... [teachers] don't generally like what they think is extra work that would need extra planning and preparation, as they normally claim they have a lot of other admin work, you know, paper work that they have to submit and so on and that some of their classes are big, as they have to [teach] in a multigrade set-up ... (Subject Advisor #1/Interview Dataset).

In addition, it was also tested whether teaching strategy differed across those with the knowledge that CAPS allows integrating IK into the curriculum versus those who are not aware. From the QUAL, the HoDs said that:

... You see, the CAPS documents in science do speak to integration, that indigenous knowledge is important – but it is never clear how to go about doing it correctly. The content should be clearly written for all grades and all learning areas or subjects ... (HOD 4/FGD Dataset #2).

... there is no clear position from the department with regard to how to do integration in the classroom ... (HOD4/FGD Dataset #2).

... There must be some policy direction in the CAPS documents or in any official integration policy that will tell teachers what to do ... (HOD1/FGD Dataset #2).

The results showed that the teachers are aware that CAPS allows for integrating IK into the curriculum and scores are higher on teaching strategy (28.90) compared to those who are not aware (21.75). The mean difference is statistically significant, with $t = 3.359 > 2$ and $p\text{-value} = 0.001 < 0.05$. This shows that those with CAPS knowledge have higher scores on teaching strategy – in a way they do integrate IK better into their lessons. The SA and HoDs agree that the teachers have knowledge of CAPS and its requirements. However, what is lacking is the knowledge in terms of integration. For this they called for training on how to integrate:

... Some [teachers] are aware I would say, especially [those] teaching the natural sciences and technology. I'm not sure about the other subjects because when we had a workshop on CAPS, this was stated to us. I am aware of this myself ... (HOD1/FGD Dataset #2).

... Yes some know and others not, and those that know do not necessarily integrate. I've seen a number of lesson plans and I've never seen them talking to integration of indigenous knowledge ... (HOD 4/FGD Dataset #2).

... They may not be doing it 100% correctly, because of a lack of training and so forth – but they know that CAPS requires that as teachers we integrate anyway, and that we approach our subjects holistically ... (HOD 3/FGD Dataset #1).

The QUANT results indicate that there are statistically significant differences in the means of action score across the years of experience, as the F value is high ($F=3.366$; $p\text{-value}= 0.024$). In FGD it was determined that teachers may be taking action to integrate IK of own their own accord – sometimes unknowingly. Teachers also confirmed that usually they do integrate without knowing they are actually integrating – and this study helped them to reflect on their practice. Experience in that regard does really matter. Results show that the statistically significant difference lies between those with less than 1 year of experience and those with 1-5 years' of experience, with those with less than 1 year of experience showing greater action. This is counter to what was observed with teaching strategies.

On the other hand, there are statistically significant differences in action score among some categories of how frequently teachers integrate IK into their lessons. This is shown by the high and statistically significant F test ($F=24.518$, $p\text{-value}=0.000$). The results show that the difference is statistically significant between those who integrate every day (highest) – compared to those who integrate once a week and never, as well as between once a week and never. Those who integrate more frequently have, on average, higher action scores than those who do so less frequently.

The study tested the association between teaching strategy and action score (see Table 4.5 below), and the results are positive and statistically significant using the Pearson correlation coefficient.

TABLE 4.5: Association Between Teaching Strategy and Action_score

		Correlations	
		Teaching_Strategy	Action_score
Teaching_Strategy	Pearson Correlation	1	.675**
	Sig. (2-tailed)		.000
	N	65	64
Action_score	Pearson Correlation	.675**	1
	Sig. (2-tailed)	.000	
	N	64	64

** . Correlation is significant at the 0.01 level (2-tailed).

In the FGD (HoDs) it was determined that IK action is erratic; however, where it happens it is good. This explains why those agreeing more that they implement items on the list of strategies, also have higher action score.

4.3 VIEWS OF IP SCHOOL TEACHERS ON THE INTEGRATION OF IKS INTO THE SCHOOL CURRICULUM

On analysing the data provided by the Subject Advisors in the FGD and the HoDs from the semi-structured interviews, and also from teachers using the self-administered questionnaire, various findings emerged. These findings are condensed and reflected in Table 4.6 (below):

TABLE 4.6: Views of IP School Teachers on IKS Integration into the School Curriculum

What is your understanding of 'indigenous knowledge'? (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • Subject Advisors' and HoDs' conception of IK is relatively well • Teachers' conception of IK relatively acceptable, with few exceptions
Based on your experience, would you say that teachers are aware that the new curriculum policy statements make room for the integration of IK into the curriculum?
<ul style="list-style-type: none"> • SA and HoDs not aware – as they do not fully monitor integration • Exposure on general theory on curriculum integration, but not on IK integration per se
What attitude would you say is displayed by teachers toward integrating IK?
<ul style="list-style-type: none"> • Attitude is mainly negative through to indeterminate
Do you (Subject Advisors and HoDs) have anything further to say on the adequacy of training of teachers?
<ul style="list-style-type: none"> • Training for the HoDs, SA, teachers and principals is needed

Teachers' Views

Do you think integrating IK into your lesson benefits your teaching?		
Response	N	Common reason/ argument
Yes	46	<ul style="list-style-type: none"> • Learners respond more easily when their first language is used and this encourages problem solving • To broaden learners' knowledge (breadth and depth) • Help increase the number of approaches to teaching • Enable the teacher-parent partnership
No	10	<ul style="list-style-type: none"> • Modern knowledge is best – as that is what controls the workplace • It is time consuming (especially given that it is not widely known); the work-load does not allow
Other	8	<ul style="list-style-type: none"> • Not sure about the demands of the process • Most likely to increase the work-load • Conditions are not supportive • Will the learners understand it anyway? • There is no training and yet a lot needs to be done • We should focus on modern knowledge in this era
Do you think your learners would benefit when you integrate IK into your lessons?		
Yes	61	<ul style="list-style-type: none"> • Make lessons enjoyable – as learners will relate well • Keeps up traditions • Easy integration of the classroom and the community • Support of parents and the community is easier in learner development • Provides a good basis for learning other things from the modern world
No	6	<ul style="list-style-type: none"> • Difficulty for learners as they are more exposed to modern things • What they are learning is already enough • Not necessary in further studies and the job market

The major views on what integrating IK means were:

- **Cultural Values, Traditions, History and Languages Used to Explain Concepts in Lessons**

... knowledge based on the teachings of our African cultures and traditions, history, language, knowledge passed on from one generation to the other, and beliefs and stories from grandmothers ... (Subject Advisor # 2/Interview Dataset).

... it is to combining different knowledge from different cultures in the learning areas' curriculum or in your teaching ... (HOD3; HOD5/FGD Dataset #2).

On the other hand, some teachers said that:

... it is about creating an environment where all cultures are welcomed and learners are valued and made to feel that they belong ... (Teacher 1- QUANT Data).

This may be in line with appreciating own customs and traditions, which most HoDs said is about “parents and old people in homes or the community teaching children, which happens from generation to generation”.



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- **Use of Indigenous Language**

The participants and respondents views converged and were strong on this, with a response such as:

... to be original, to use language learners know, they talk most of their lives ... (Teacher 3, QUANT Data).

- **Local/IK Seen as Informal Knowledge**

The respondents and participants views converged and were strong on this, with responses such as

... it is what is already known, prior knowledge, used informally at home...
(Teacher 2, QUANT data).

This corroborates a Subject Advisors' remark:

... It's not the knowledge that is taught at school; its knowledge that is taught at home and in the community. It is the knowledge that is known prior to the child coming to school ... (Subject Advisor #4/Interview Dataset).

One HoD echoed this statement, by saying that:

... use of mother tongue, what they already know and the things they experience in their own environment ... (HOD3/FGD Dataset #2).

Variable C4 measured what can be thought of as IK integration by teachers. Four items of Question C4 in the self-administered questionnaire required the teachers to respond to whether they agreed or disagreed with four items that pertained to the benefit of IK for their teaching (C4_1); the benefit of IK for learners (C4_2); the impact of training in the integration of IK (C4_3); and the value of IK in teaching and learning (C4_4). The four items have high reliability, with an alpha =0.719 > 0.70. Table 4.7 (below) summarises how teachers responded to the different items:

TABLE 4.7: Summary of how teachers responded to the different items

Variable and Category	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
C4(1)						
Frequency	1	5	6	30	22	64
percent	1.6	7.8	9.4	46.9	34.4	100
C4(2)						
Frequency		26	8	4	26	64
percent		38.8	12.5	6.3	38.8	100
C4(3)						
Frequency	7	18	10	13	15	63
percent	11.1	28.6	15.9	20.6	23.8	100
C4(4)						
Frequency	17	26	7	10	3	63
percent	27.0	41.3	11.1	15.9	4.8	100

Only C4 has the majority (68.3%) at least agreeing with the statement that they do not integrate because they do not see its value in teaching and learning. The others are more neutral or disagree.

In terms of understanding the construct 'IK integration', the Subject Advisors and HoDs are fully informed of IK and its importance. They cite several benefits of the inclusion of IK into the curriculum. Also, Subject Advisors and HoDs have a firm grasp of the concept 'indigenous knowledge' – but the main challenge is with institutionalising it and monitoring. The textual responses in the teacher survey indicate that teachers also have a fair grasp of 'indigenous knowledge' – with some exceptions illustrated by the following excerpts⁴ which denote a very poor conceptualisation of 'indigenous knowledge':

- Indigenous knowledge means that a learner or child learns through his or her mother-tongue.
- Indigenous knowledge is associated with local level decision-making.
- Firstly the word 'indigenous' means living in a place where you are originally from. This is indigenous knowledge.
- Indigenous knowledge means that teaching starts outside the classroom. Outside in the community you are taught if you beat or hit others, then you are abusing them.

⁴ I have revised the statements because they were grammatically and syntactically incorrect and as a result it was difficult to decipher meaning thereof.

- Indigenous knowledge is knowledge that an educator has from outside the school and from other areas.
- Indigenous knowledge means that as an educator or a learner, you use natural things and the natural mind to solve daily problems.
- Indigenous knowledge is difficult because learners are used to English.
- Indigenous knowledge is original and it is what the learners already know.
- Indigenous knowledge helps learners to understand quickly.
- Indigenous knowledge means learners' prior knowledge is assessed.
- Indigenous knowledge means to be original and also means that learners use the language that they know and that they use most of their lives.
- Indigenous knowledge makes learners to understand subject content and it assist in explaining difficult words.

The above are the attempts of individual respondent-teachers in the teacher survey who responded to the question on their understanding of 'indigenous knowledge'. The reasons for the poor syntax in formulating responses to the question on the meaning of 'indigenous knowledge', are unclear. One reason could be weak language competency.



Some Subject Advisors argue that they are aware of IK integration and that they should support it in schools – but do not monitor it per se. On the other hand, the teachers and HoDs are aware that there is no monitoring because there are no tools in place for the SAs and HoDs to benchmark the extent to which IK integration is done – thus affecting teacher propensity to integrate IK. The teachers' and HoDs' views echo the views of Subject Advisors, that they do not monitor and support appropriately and adequately, because they do not have monitoring tools and they themselves are not adequately trained in integration.

The IK_Inclination variable was computed based on the extent that teachers are more likely to integrate IK, but was not statistically significant between males and females – although males have slightly higher mean scores (15.04) with a standard deviation of 3, compared to females (14.34) with a standard deviation of 3.589. The same applies when comparing the school types, although those from primary school only have a

higher mean score (14.75) with 3.249 as standard deviation, than the ones from combined schools (14.00) with a standard deviation of 3.977. The difference is also not statistically significant.

Independent sample t-test results indicate that teacher-respondents who are aware of CAPS provisions regarding IK have a slightly higher (14.82) mean score than those who are not aware (14.52) – and the mean difference is not statistically significant. These results can be explained by the fact that there is a mixed understanding between Subject Advisors and HoDs in terms of their position of monitoring IK integration – though it is clear in CAPS documents that it must be done. Those who are aware also have an idea of how IK integration is monitored. It is also evident that the difference in the mean scores suggests that teachers also believe that Subject Advisors and HoDs are aware of the monitoring of IK integration, because some of the teachers took an initiative to self-train and/or acquire informal training on IK. This means that the Subject Advisors and HoDs lack confidence in terms of understanding of and the integration of IK – thus they cannot advise or train teachers on IK integration. This problem can be addressed if all the stakeholders are given room to interact and discuss IK integration more through workshops and regular meetings.

IK_Inclination, however, differs across the categories of how frequently IK is integrated in classrooms, as the ANOVA F test was statistically significant ($F=5.353$, $p\text{-value}=0.002 < 0.05$). The results indicate that the difference is statistically significant between the two extremes of those who integrate every day, compared to those who never integrate – with those who integrated daily with a high IK_Inclination score on average. Figure 4.5 (below) shows the frequency of IK integration by teachers. The more one does to integrate, the higher the inclination.

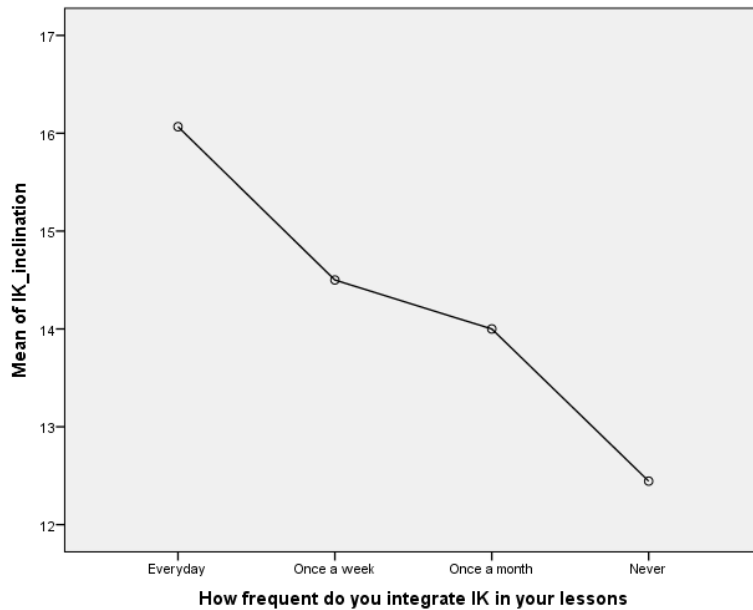


Figure 4.5: How frequently teacher-respondents integrate IK in their lessons

Table 4.8 (below) shows that the Pearson correlation coefficient results indicate that IK_Inclination is positively correlated with teaching strategy and Action_score, with the relationship stronger with Action score than with teaching strategy.

Table 4.8: Correlations of IK_Inclination with Teaching Strategy and Action_score



Correlations				
		Teaching_Strategy	Action_score	IK_Inclination
Teaching_Strategy	Pearson Correlation	1	.675**	.398**
	Sig. (2-tailed)		.000	.001
	N	65	64	64
Action_score	Pearson Correlation	.675**	1	.425**
	Sig. (2-tailed)	.000		.000
	N	64	64	64
IK_Inclination	Pearson Correlation	.398**	.425**	1
	Sig. (2-tailed)	.001	.000	
	N	64	64	64

** . Correlation is significant at the 0.01 level (2-tailed).

The multiple responses to the kind of training the teachers received were analysed. The multiple response frequency table is presented above. An analysis of teacher responses based on knowledge of IK, shows that most teachers never received any form of training (41.4%). Those who taught themselves are at 20.0%, followed by formal training (18.6%), informal training (17.1%), and lastly in-service training (2.9%). As a result, it is understandable if the Subject Advisors and HoDs feel that teachers lack knowledge and resources – thus leading to a negative attitude toward IK

integration. There is no information on the training provided to HoDs and Subject Advisors. As a result, it is evident that the teachers, Subject Advisors and HoDs need training, in order to effectively institute IK integration.

TABLE 4.9: IK_potential means between male and female

Group Statistics					
		N	Mean	Std. Deviation	Std. Error Mean
IK_POTENTIAL	Male	26	20.85	4.287	.841
	Female	38	19.71	4.478	.726

Variable C6, which checked on the potential for integrating IK, has items that are highly reliable – with an alpha =0.936 > 0.70. A total score was computed and named IK_Potential. Table 4.9 above shows the IK potential between male and female, and the results show that males (26) have the highest IK potential (mean=20.85) – as compared to females (38; mean 19.71). The difference in means is not however statistically significant. The Table above shows the IK potential among two types of schools. The results show that primary schools have a higher IK potential (20.39) compared to combined schools (19.17). However, the difference is not statistically significant.

On the other hand, the results show that those who are aware of CAPS provision have a slightly higher mean IK_Potential (20.51) compared to those who are not aware (20.35); however, the difference in means is not statistically significant. This information is in sync with evidence from interviews which suggests that Subject Advisors and HoDs admit that the timing of the implementation of IK integration was not in line with the level of preparedness of all stakeholders. As a result, the Subject Advisors generally suggest that all stakeholders should get appropriate training:

... I have not received full training even in this integration of indigenous knowledge ... (Subject Advisor #5/Interview Dataset).

Although it is clear that teachers need training, the Subject Advisors and HoDs who should give guidance are not trained themselves, and they do not have proper training tools and plans. HoDs state the following in this regard:

... I too do not have formal knowledge or training in this integration, but I think it has to do with teaching together the modern school knowledge in textbooks and in the curriculum of all learning areas, with the traditional knowledge of learners that is based on their culture at home and in the community ... (HOD4/FGD Dataset #2).

... I speak for myself and some of the colleagues or teachers I know, that the lack of training is a stumbling block ... (HOD5/FGD Dataset #2).

... The training we receive on the curriculum and teaching issues is not adequate, and therefore not all of us as teachers will properly know about this integration. Some of my colleagues in other subjects – I've never heard them talking about integration and I've never heard them commenting on lesson plans with integration involved ... (HOD3/FGD Dataset #2).



In terms of IK potential across levels of how frequently IK is integrated, is statistically different, and some differences in the means of IK-potential are observed. The difference lies mainly between those who integrate daily, compared to those who never do. Those who integrate daily have a higher IK_Potential (mean difference of 3.367, p -value < 0.05) as would be expected. This evidence can also be supported by the information from the interviews, which stresses that the implementation and integration of IK is significantly affected by capacity constraints. These are attributed to a lack of clarity on understanding policy guidelines, and a lack of advocacy campaigns and resources. Also there is limited engagement with stakeholders that have more information on IK. Monitoring is also difficult, since the Subject Advisors and HoDs do not have proper monitoring tools and training to effectively monitor IK integration into schools.

Table 4.9 (below) indicates that the correlation between IK Potential, teaching strategy and IK inclination suggests that IK Potential is only associated with IK Inclination ($r=0.711$ which is closer to one, and therefore very strong; $p= 0.05$). This suggests that

inclining toward IK teaching from the introduction to assessment, is the most effective approach to integrate IK. This is also in line with the suggestion made by the Subject Advisors and HoDs that IK needs to be integrated throughout lessons, from the introduction to assessment – as suggested in section 4.3. The Subject Advisors suggest that IK integration can be more effective throughout lessons if it is consistently used together with examples during the introduction, also during the presentation stage. Additionally, IK integration can be used during the assessment stage by asking for IK examples when assessing.

TABLE 4.10: Correlation between IK_Potential, Teaching Strategy and IK Inclination

		Correlations			
		Teaching_Strategy	Action_score	IK_inclination	IK_POTENTIAL
Teaching_Strategy	Pearson Correlation	1	.675**	.398**	.152
	Sig. (2-tailed)		.000	.001	.232
	N	65	64	64	64
Action_score	Pearson Correlation	.675**	1	.425**	.222
	Sig. (2-tailed)	.000		.000	.078
	N	64	64	64	64
IK_inclination	Pearson Correlation	.398**	.425**	1	.711**
	Sig. (2-tailed)	.001	.000		.000
	N	64	64	64	64
IK_POTENTIAL	Pearson Correlation	.152	.222	.711**	1
	Sig. (2-tailed)	.232	.078	.000	
	N	64	64	64	64

** . Correlation is significant at the 0.01 level (2-tailed).

According to the perceptions of teachers, about 36 (54%) believe that it is possible to adhere to the CAPS statement regarding IK inclusion in the curriculum because students stay with parents and grandparents. On the other hand, 28 (43.75%) argue against CAPS advocacy for IK integration, citing that there is a scarcity of teaching material, that resources are not available, and it will not be easy to change existing resources that have inadequate IK content as a result of the legacy of colonialism and apartheid. Also, the teachers indicate in the narrative response that they need funds to develop and produce textbooks and teaching materials that have adequate IK content.

The results presented in Table 4.11 (below) are in sync with the responses from the Subject Advisors and HoDs who suggest that it is difficult to adhere to the CAPS

statement regarding IK inclusion in the curriculum – due to limited IK textbook content and IK resources, as a result of the impact of colonialism and apartheid.

TABLE 4.11: Teacher-Respondents’ responses on the possibility to adhere to CAPS regarding IK inclusion in the curriculum

Response	N	Comments
Yes	36	<ul style="list-style-type: none"> • Most learners live with grandparents • Only adjustment of material is needed – nothing much • No challenges expected at all • More educators will be needed
No	28	<ul style="list-style-type: none"> • More resources needed – not enough teaching material is available • No training is available • Not of any benefit • Resources are not available and it is not easy to change existing ones • Negative impact of colonialism and apartheid on IK content • Big classes and multi-grading does not favour integration • Teachers are not willing to adjust • IK values in conflict with Christian values

In support, QUAL data report that:

... The oppressive apartheid regime said our knowledge and history is not important and is backward and dangerous, and therefore it must not be taught to keep us in the dark. Now this is partly perpetuated because we still find little of the indigenous resources and not enough indigenous knowledge ... (HOD3/ FGD Dataset #2).

... One aspect is that due to apartheid and maybe colonisation, teachers do not place much value on indigenous knowledge ... (HOD3/FGD Dataset # 1).

...I think the authors of books do take indigenous knowledge seriously – like it was in the past during apartheid. In the past, our history and knowledge from

Black communities was not respected, as it was seen to be uncivilised and so on ... (Subject Advisor #5/Interview Dataset).

4.4 THE ROLE SUBJECT ADVISORS AND HODS PLAY IN SUPPORTING AND MONITORING THE INTEGRATION OF IKS

Even though teachers and Subject Advisors and HoDs all agree that the latter two have a significant role to play in supporting and monitoring the integration of IKS, they all agree on the limited capacity. The Subject Advisors and HoDs require training to be able to effectively support and monitor. Others do not support and monitor – as they face work overload. Table 4.12 below shows the themes that emerged from the interviews with the Subject Advisors and FGDs with the HoDs.



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TABLE 4.12: The Role SAs and HoDs play in supporting and monitoring the Integration of IK

Do you think teachers need support to be able to successfully integrate IK in their teaching?
<ul style="list-style-type: none"> • Teachers need more support from various fronts, that include Subject Advisors, HoDs, the Education District community, universities, traditional leadership, and unions • Teachers need various kinds of support with the integration of IK into the curriculum
Rate your support and what you would do to improve your support (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • Low rating meaning poor support, as SA and HoDs are not trained and/or are inadequately equipped with the tools of trade
Do you need training or support? (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • Training is needed by all Subject Advisors, HoDs, and teachers with the integration of IK • Training from the Education Department is poor to inadequate
How do you monitor the teachers to see if they integrate IK in their lessons? If you do not support, do you monitor at all? (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • Little to no monitoring of integration of IK by Subject Advisors and HoDs takes place
Tools that you use for monitoring integration as you don't monitor it? (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • No monitoring tool used that caters for IK integration, and most SA and HoDs do not monitor
What challenges do you experience when you monitor integration (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • Generally no monitoring or poor monitoring takes place; the little taking place is impeded by admin tasks, lack of training, syllabus coverage, and teacher negative attitudes
Based on your experience, how can the support for and monitoring of teachers be improved to enable teachers to integrate IK successfully? (Subject Advisors and HoDs)
<ul style="list-style-type: none"> • Training, provision of resources, reduction of syllabus to be covered, and reduction of admin work needed

From the Table above it may be inferred that (i) the teachers do not receive adequate support and monitoring to integrate IK and thus need support not only from HoDs and Subject Advisors but from various formations that include the community, universities, traditional leadership and unions (ii) the HoDs, Subject Advisors and teachers are inadequately trained in IK integration in the IP school curriculum, (iii) various factors are impeding for IK integration – these impeding factors include excess administration tasks, lack of training, a bloated syllabus to be covered, and negative disposition towards IK integration, and (iv) to improve the support and monitoring of teachers in integrating IK, the latter impeding factors would have to be eliminated.

The results of the interviews provide evidence that Subject Advisors are fully aware that teachers need more support to integrate IK – but they do not see that support coming from them in the current state:

... I find it difficult to monitor and support all schools equally well, because of the large numbers I supervise. I now support 220 schools – both primary and high schools ... (Subject Advisor #3/Interview Dataset).

They also point out that teachers need resources, training and a considerable reduction in workload – so that they can be effective:

... teachers need a reduction of workload to be able to integrate ... (HOD 3/FGD Dataset #1).

On the other hand, the results of the QUANT analysis also suggest that most teachers need support to integrate IK (91.8%), while only 15 (25.4%) get the support – and of those 15, only 6 (42.9%) consider the support to be adequate. Ultimately, it is interesting to note that Subject Advisors and HoDs are aware of the kind of support needed to enhance the integration of IK – but they are not taking action to provide the much needed support, citing lack of training and appropriate control tools. The many schools they have to supervise are also cited as a challenge:

... Because I have many grades to look after since I'm a Subject Advisor for grades 4-9, which makes me not have enough time to train teachers because of other programmes needed in the subjects ... (Subject Advisor#3/Interview Dataset).

It is also important to note that Subject Advisors and HoDs also share the same fate with teachers – in terms of their preparedness to integrate IK. The outcomes of the interviews reveal that Subject Advisors and HoDs were not trained, and hence they are not equipped enough to render the needed support.

... Honestly, poor. I'm ashamed to say that it is almost not existent ... (Subject Advisor#2/Interview Dataset).

... Very poor. It is not there on the integration of indigenous knowledge ... (Subject Advisor#4/Interview Dataset).

This assertion therefore concurs with the results from surveys done on teachers, which suggest that most teachers report that their HoDs never support them (41.9%). However, a significant proportion (21%) is supported regularly, and 17.7% and 14.5% are supported sometimes and occasionally respectively. The rest are seldom supported.

4.5 STRATEGIES THAT CAN BE PUT IN PLACE TO SUPPORT AND MONITOR THE INTEGRATION OF IK IN THE IP SCHOOL CURRICULUM?

Table 4.13 (below) displays the strategies proposed by teachers and SAs and HoDs:

TABLE 4.13: Strategies that can be put in place to support the integration of IK into the IP School Curriculum

What would you like see the National and Provincial Departments of Education do?	What would you like to see the District office do in terms of support?	What particular strategies would you like to see put in place at school and class levels?
Teachers' Survey		
<ul style="list-style-type: none"> • Curriculum policy adjustment/revision • Material provision and revision • Workshops and training • Better infrastructure • Monitoring and evaluation • Collaborating efforts with all stakeholders • Encourage partnerships with communities and parents • Work-load reduction – employing more teachers 	<ul style="list-style-type: none"> • Monitoring (school visits) • Workshops and training • Dealing with workload – more teachers needed • Policy implementation (mainly explaining and clarifying) • Subject Advisor (SA) training • Resource provisioning and infrastructure 	<ul style="list-style-type: none"> • Meeting among teachers to share knowledge and plan • Integrate into time-table (SMT role) • Principal to organise training • Reduced/share workload • Updated resources with IK content • Monitoring and close supervision of teachers • Implementing policies fully
Subject Advisor Interviews and HoD Group Discussions		
<ul style="list-style-type: none"> • Capacitation and policy clarity on IK from the Education Department is inadequate 	<ul style="list-style-type: none"> • Standardising monitoring and support tool, lobby for more resources and upskilling strategy • Training teachers, SA, HoDs, SGB and other officials • Involve education stakeholders like universities, the community and traditional leaders, to support integration 	<ul style="list-style-type: none"> • Support district and province efforts and involve SGB and the wider community • Teachers to work together and not in silos • Subject specialisation approach to be discouraged

Form the Table above, the researcher deduces that varied strategies are required to support and monitor the integration of IK in the IP school curriculum. The strategies ranges from the organisation of workshops, training and the provisioning of adequate of appropriate teaching resources and infrastructure to include the involvement of stakeholders like the community, traditional leaders and education stakeholders. As well, it appears that teachers themselves should work together, as a team, to support each other to implement IK integration successfully. The paragraphs below further explore the strategies suggested in the Table above.

4.5.1 Capacitation and Policy Clarity on IK from the Education Department

Subject Advisors and the HoDs attest that capacitation and policy clarity on IK from the Education Department is inadequate:



... training and resources with clear policy for integration is needed ... (Subject Advisor #4 Interview Dataset).

... I can say that the policy from the Department must be clear and convince the stakeholders – the teachers included – about the benefits of indigenous knowledge in teaching and why it is also important for the children ... (HOD4/FGD Dataset #2).

Furthermore, the survey of teachers revealed that the implementation and integration of IK is significantly affected by capacity constraints. The constraints are attributed to a lack of clarity on curriculum policy guidelines, and a lack of advocacy campaigns and resources. Also, there is limited engagement with stakeholders that have more information of IK. As a result of training of Subject Advisors, HoDs and teachers and all stakeholders will help get clarity on IK and will facilitate the integration of IK:

... The resources must be provided to the province, and the province must cascade them down to Districts and schools. A clear CAPS integration policy must be developed and all stakeholders must make inputs in content ... (Subject Advisor #5/Interview Dataset).

Moreover, increasing capacity in schools will lessen their burden of large classes and/or responsibilities – and thus help teachers to focus on IK integration in teaching. This can be achieved through collaborative efforts with national and provincial departments who according to one Subject Advisor should

... Involve all stakeholders to have input on the integration of indigenous knowledge. Provide resources. Employ more human resources. Have advocacy campaigns and train all stakeholders in workshops and also the theory of integration ... (Subject Advisor #3/Interview Dataset).

... Education stakeholders who are knowledgeable about indigenous knowledge should form forums from National to Provincial – and these forums must produce a clear policy framework on the integration of indigenous knowledge into the curriculum ... (HOD 3/FGD Dataset #2).

4.5.2 Standardising Monitoring Tool and Lobby for More Resources at District Level

The teachers harbour the notion that stakeholders are, to some extent, aware of the significance of IK integration – but the major challenge is the full implementation of the IK integration policy, starting from the National department. This is also in line with the opinion of HoDs and Subject Advisors – that there should be standardising and lobbying for more resources from the Department, in order to fully implement the IK integration policy:

... They must employ more Subject Advisors and teachers ... (Subject Advisor #4/Interview Dataset).

... Maybe more qualified and competent Subject Advisors must employed [sic] to benefit teachers and the learners ultimately ... (HOD4/FGD Dataset #1).

... The government should start first by advocacy campaigns that highlight the importance and benefits of indigenous knowledge in the curriculum ... (HOD1/FGD Dataset #2).

Since Subject Advisors and HoDs lack appropriate control tools, the Department should design a standardised tool that can help SAs and HoDs to monitor IK integration by teachers:

... We don't have what I think is a tool to monitor indigenous knowledge really. So, our monitoring is just general monitoring of syllabus coverage and monitoring during moderation ... (HOD1/FGD Dataset #2).

... I don't have any tools that accommodate integration of indigenous knowledge. I don't know of any Subject Advisor that has such a tool ... (Subject Advisor #4/Interview Dataset).



Furthermore, if the Department provides adequate resources, teachers will be able to work effectively toward IK integration.

4.5.3 Schools Must Support District and Province Efforts and Involve SGB More at School Level

Team-work and reading widely are key to successful integration. Some Subject Advisors and HoDs believe that teachers work in isolation and are focused on their areas of specialisation:

... phase teachers group and teach as a team across subjects ... (Subject Advisor #4/Interview Dataset).

On the other hand, HoDs said the following:

... [a] team approach must be followed when we talk about integration ...
(HOD2/FGD Dataset #2).

... We normally approach our subjects as a team, a collective in our schools.
That means that we don't operate all alone in our subjects, but we share
experiences on how to integrate subjects for the benefit of learners ...
(HOD1/FGD Dataset #1).

... teachers need to team-teach, to share in a forum of different subject
specialists in the schools and not to do things all alone in little corners ... (HOD3/
FGD Dataset #1).

Teachers also must point out that the relationship between the SGB and SMT may help in terms of inter-subject teaching, resource mobilisation and advocacy campaigns. This provision is also in line with the Subject Advisor and HoD view of involving SGB at school level, to assist with building a supportive relationship in respect of IK integration.



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4.5.4 Schools Must Support Teachers Through Allowing Phase and Grade Meetings to Focus on Integration

The results of the QUANT analysis provide that teamwork and coordination between teachers at different levels may be a solution to encourage the integration of IK. This is important because teacher confidence can only be instilled when people share their understanding, concerns and approaches to IK integration. Furthermore, the Subject Advisors and HoDs also suggest that regular meetings among teachers and other stakeholders would help to encourage the motivation of teachers in terms of integration:

... You can see it even if we have phase meetings or grade meetings, that they do not have a team-teaching spirit. Now they pick challenges and this is worse when it comes to aspects like integration, where we all are not properly knowledgeable. We need to help each other ... (HOD1/FGD Dataset #2).

... Phase meetings should happen and subject or learning area training must be conducted ... (Subject Advisor #4/Interview Dataset).

... phase meetings and learning area meetings to share success stories and brainstorm challenges ... (Subject Advisor #5/Interview Dataset).

The idea is on learning from others, sharing best practices, and brainstorming on any hurdles faced.

4.5.5 Involve Community Stakeholders: Parents, Traditional Authorities, Experts on Indigenous Knowledge, Unions

IK may not only require training, but also an understanding of its founding principles to better conceptualise it. That is – collaborating efforts and encouraging partnerships with all stakeholders that have a role to play in disseminating and integrating IK. This assertion is consistent with the proposal of Subject Advisors and HoDs to encourage the involvement of education stakeholders like universities, and community and traditional leaders, to support the integration of IK:



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... The community must be formally approached to come to school and talk to teachers and learners on indigenous knowledge aspects ... (HOD1/FGD Dataset #2).

... The school should make time for the up-skilling of teachers and should involve relevant community stakeholders that are knowledgeable in indigenous knowledge systems, to serve as a cultural advisor or a project advisor. We should really get the parents or community involved. Communities are very important stakeholders to the school – it's extremely important. Business people, doctors, and traditional leaders must be used to empower learners on things traditional and cultural ... (HOD5/FGD Dataset #1).

... should also work closely with school community stakeholders to make them aware of the importance of indigenous knowledge ... (Subject Advisor #5/Interview Dataset).

... The community can be involved to donate examples of indigenous objects and invite elders to talk about indigenous knowledge. Indigenous stuff can be put on display in the classrooms ... (Subject Advisor #4/Interview Dataset).

4.5.6 Universities Must Play a Role in the Training of Teachers on Integration

In terms of the role of universities in preparing teachers who are ready to institute IK integration, there were very limited results from the QUANT data analysis. Nevertheless, the Subject Advisors and HoDs suggest that the universities as tertiary institutions that prepare teachers – should also ensure that they provide training on IK integration:

... They should use the training on integration they were taught in formal training there, at the college or university, to integrate our African knowledge. Respect it and use the normal teaching methods like storytelling and discussion and question and answer methods ... (Subject Advisor #3/Interview Dataset).



... universities must be approached to teach new and prospective teachers on their integration of IK into the school curriculum ... (HOD4/FGD Dataset #2).

... The universities must be approached to make their training relevant and focussed on integration ... (Subject Advisor #5/Interview Dataset).

The role of universities is important as the institutionalisation of IK integration was done before teachers got training on IK integration. Therefore, it is crucial to ensure that institutions that train teachers do give training on IK integration.

4.5.7 All Relevant Stakeholders from SGB to Learners Must be Involved Through Advocacy Campaigns

The Subject Advisors and HODs believe that promotional campaigns are crucial in order to expose the importance of IK integration in view of all stakeholders. For people to accept IK integration, they need to be informed and motivated about the importance

of IK in shaping their identity in learning – and how IK connects with international knowledge. On the same note, the teachers also support the proposal by suggesting partnership with communities and arranging a series of workshops with different stakeholders. With regard to this statement, the following was stated by a HoD and Subject Advisor respectively:

... The government should start first by advocacy campaigns that highlight the importance and benefits of indigenous knowledge in the curriculum. All those benefits like the principle of moving from known to unknown, the indigenous language's importance and the preservation and promotion of the traditional knowledge, should be spread among people in the education field ... (HOD1/FGD Dataset #2).

Both national and provincial departments should plan advocacy campaigns that promote indigenous knowledge and the integration of indigenous knowledge into all school curricula. These should be accompanied by training of all school stakeholders and [the provision of] workshops ... (Subject Advisor #5/Interview Dataset).



4.5.8 Established Forums are a Must, to Inform the National Department on Integration Issues Like Content, Assessment, and Teaching Methods

The teachers believe that their workload hinders effective IK integration (Teacher 12, 23, QUANT dataset). Also, stale information affects the motivation of teachers, and hence they believe that there should be provision on the timetable to allow for teacher training, to encourage the management (SMT) to update resources with IK content, and to reduce workload. This is also supported by the Subject Advisors and HoDs, who are advocating for improving IK content, teaching methods, and assessment criteria:

... Education stakeholders who are knowledgeable about indigenous knowledge should form forums from national to provincial, and these forums must produce a clear policy framework on the integration of indigenous knowledge into the curriculum ... (HOD3/FGD Dataset #2).

... The District should influence the provincial and national departments to employ more human resources. They should train and support the Subject Advisors and other officials with resources. Proper tools for support are needed and also support guidelines ... (Subject Advisor #3/Interview Dataset).

Clarity of policy on how integration has to take place has often been demanded by the participants, like a Subject Advisor who asserted that:

... The national government must work on providing us with a clear policy on integration and all stakeholders must have an input, so that it is not rejected and attitudes are created. I don't recall seeing a guideline in the policy document on content and so on in respect of indigenous knowledge ...(Subject Advisor #2/Interview Dataset).

4.6 SUMMARY

This chapter did two things: first, it provided the biographical information of the 67 teacher respondents, the 10 focus group HoD interviewees, and the five Subject Advisor individual interviewees. All respondents were drawn from a population directly and variously involved in the IP of schooling in a selected Education District in the Eastern Cape Province, South Africa. Second, data were presented, analysed and interpreted – and findings were drawn from the data and presented. The findings were based on the following key research questions:

- How do teachers integrate IKS into the school curriculum?
- What are the views of Intermediate Phase school teachers on the integration of IKS into the school curriculum?
- What role do Subject Advisors and HoDs play in supporting and monitoring the integration of IKS into the Intermediate Phase school curriculum?
- What strategies can be put in place to support and monitor the integration of IKS into the Intermediate Phase school curriculum?

The next chapter discusses the emerging themes/findings.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 INTRODUCTION

This chapter discusses the major findings of this study, which sought to respond to the question of how IK is integrated in the IP school curriculum by teachers in a selected Education District in the Eastern Cape Province of South Africa. In discussing the major findings, this chapter does the following: themes emanating from the study's research sub-questions are interrogated. The first theme engages with how teachers integrate IK into the school curriculum; the second theme looks at the views of teachers on IK integration in the school curriculum; the third theme discusses the role of Subject Advisors and HoDs in supporting and monitoring IKS; the last theme focuses on the strategies that could be implemented to support and monitor IK integration into the school curriculum.



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5.1 PROVIDING ANSWERS TO THE RESEARCH QUESTION

To fully provide a holistic answer to the research question on how teachers integrate IK into the school curriculum, the following was done: First, the research sub-questions guided the overall discussion, and second, the QUANT results from the QUANT data analysis were merged/mixed with the QUAL responses, as per the protocols of the concurrent triangulation mixed-methods design that was discussed in Chapter Three and adopted and employed by this study – as illustrated in Chapter Four. Last, it has been deemed imperative to select from the numerous themes shown in Chapter Four and Appendix Q *major* themes emanating from the QUAL data (this includes both the QUAL data from interviews and FGD and the textual responses from the teacher survey) – that are *most relevant* in terms of answering the research question of this study. In answering the research question, brevity - as a requirement for writing a discussion Chapter – was attempted.

5.1.1 How Teachers Integrate IK into the School Curriculum

An overall answer to the question is that integration is not happening at all schools. It is erratic. Where it was happening, it was done unknowingly and unconsciously. As noted in Chapter 4, the teacher survey indicated that 65.6% of teachers *do* integrate. The rest, a significant 34.4%, did not integrate at all. Those claiming to integrate were unsure whether they were doing integration correctly. The reasons for this state of integration are revealed in the findings that are discussed further on in this section.

Understanding of 'Integration of IK into the School Curriculum'

5.1.1.1 IK Integration in the School Curriculum Relatively Well Conceptualised

The construct *Integration of IK into the school curriculum* was central in this study. Thus, the researcher sought to understand how the respondents and participants conceived the construct. It was important to establish whether the teachers, HoDs and Subject Advisors shared a common understanding of the construct.

The findings show that teachers, HoDs and Subject Advisors understand moderately well what the construct 'integration of IK into the school curriculum entails'. The units emerging from the QUAL data in Appendix Q and the textual data from the teacher survey attest to this. The finding at least gives us consolation that teachers have a fair understanding of what IK integration into the school curriculum means, even if the study found that many teachers are not integrating, are unable to integrate, are reluctant to integrate, and are unsure how to integrate. The reasons for this situation are given by authors like Mothwa (2011), Matike (2012), Khupe (2014), and Jacobs (2015). The reasons will be explored later in this section, during discussion of other themes.

The following themes emerge with regard to how IK is conceived by respondents and participants:

5.1.1.2 Mixing of Local/IK with Dominant Western-Orientated Content Knowledge in the Textbook

Respondents and participants conceive IK integration into the school curriculum to be a mixing of local/IK with the hegemonic Western knowledge content in the curriculum. This is in line with several authors' assertions that see integration as a mixing of IK and Western Eurocentric-dominated content of the curriculum. In Chapter Two, Phiri (2008) and Singh (2000) referred to the mixing of different cultures, which supposes different cultural knowledge in the classrooms as *hybridity*. Singh (2009) largely concurs with Phiri. Hybridity is a concept coined by Bhabha (1994), which led to the construct *hybridisation*. Therefore, inference could be made from the finding that the respondents and participants conceptualised IK integration into the school curriculum as hybridisation of the curriculum. The finding is in line with the assumption that this study was premised on. This finding is in line with the assumption that guided this study – which was not to suggest dismantling all things Western in the curriculum, removing and suppressing them from the curriculum, and replacing them with a dominant IK (Tiffin, 2008). As noted in Chapter Two, this study was premised on the assumption that the hegemonic Western knowledge in the curriculum could converge and integrate with IK in an interfaced space. This interfaced space will be visited further later in this discussion. Furthermore, this finding is largely in line with Ashcroft et al. (2008) and Petersen and Rutherford (2008), who believe that the cultural traditional forms of knowing and local knowledge should be integrated in the curriculum into a synergistic and symbiotic relationship with Western-orientated cultural knowledge. Beane (1995) (see Chapter Two, the theoretical framework) and Harden (2000) (see Chapter Two, the theoretical framework) echo the finding's fundamental notion of bringing together IK and Western Knowledge in the curriculum.

5.1.1.3 Linking the Known Prior Knowledge of Learners to Teach the Unknown in the School Textbook Content

Respondents and participants seemingly understand *IK integration into the curriculum* to mean the process of linking known prior knowledge of learners with the unknown

content in the textbook. The unknown content could be construed to be the Western-skewed knowledge. This teaching strategy that this finding reveals is connected to the teaching principle and teaching method of starting with the known and proceeding to the unknown in line with Yeşilyurt's (2012) (see Chapter Two) qualitative case study whose general aim was to determine teachers' application levels of common teaching principles and the problems they encounter. The finding is also in line with Khupe's (2014) and Mc Knight's (2015) studies, which showed how, in a constructivist approach, a lesson started with the learners' prior knowledge – before introducing them to new ideas. Furthermore, teachers in Dziva et al.'s (2010) study in Zimbabwe reported they do not frequently integrate IKS, but they often use learners' knowledge from home and improve students' knowledge from this base. It should be emphasised that the local/IK of learners was the prior knowledge. Even UNESCO (2010), as indicated in Chapter Two, supported the idea of adopting the philosophy of 'known to the unknown' in education – especially in IK integration in the classroom – because learners come with a knowledge they are familiar with about the local area and can then gradually move to the knowledge about regional, national and global environments.



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The researcher believes it would be useful way of integration, because, as Jacobs (2015, p. 61) asserted, “learners do not come to the classroom with *tabula rasa* minds”. The researcher shares the sentiment.

What teachers do when they integrate IK into their lessons

5.1.1.4 IK Integration is Happening Mainly Through Excursions, Sports, Themes, and Projects

The respondents and participants mention numerous teaching methods and strategies about how integration of IK occurs at schools. However, the teaching methods and strategies that tend to be more pronounced, unique and different are the ones this finding reveals: excursions, sports, themes and projects. As such, this finding has four strategies in one. From the monitoring side by HoDs and Subject Advisors, this study found that HoDs believe that integration *is* happening mainly through excursions,

sports, themes and projects – although at a very low level. The Subject Advisors were not so sure, but suggested that the strategies the finding reveals could be useful in aiding IK implementation in schools. The textual evidence from the teacher-respondents that forms part of the units in Appendix Q corroborates the views of HoDs and Subject Advisors.

This finding reveals that **excursions** are one way that IK integration occurs in schools. This concurs with Matike's (2012) assertion that the teaching of IKS comprises the use of outdoor activities (excursions) that require the participation of learners, and which would make learning a participatory process. It also concurs with Palamuleni et al. (2012), who maintained that the IKS practitioners could provide learners with an opportunity to learn much from fieldwork in the local area, in order to encourage integration. It should be noted that, in this study, fieldwork and outdoor activities are perceived to be part of the broader term – excursions. King and Schielman (2004) also cite excursion as being a method that could be used to facilitate integration.

In Chapter Two, in relation to **themes** which can be used in **projects** as a strategy to achieve IK integration, two theories that formed part of the theoretical framework for this study, mentioned themes as being an important factor in curriculum integration. The first theory was Beane's (1995) theory of *Curriculum Integration and the Disciplines of Knowledge*, which asserted that the knowledge in curriculum integration should be organised in themes drawn from real-life concerns such as cultures. Teachers should identify themes in collaboration with the learners. Then, the themes would be addressed by activities – but subject areas that might contribute to the theme are not identified. Beane also suggest that the focus should be on themes used for **projects**. The theme provides the context and motivation, and not isolated subjects. It is thus noteworthy that teachers, HoDs and Subject Advisors in this study suggested that one strategy for IK integration in the classroom, is utilising themes and projects. The subject role or position or importance appears to be downplayed by the teachers. However, it is conjectural whether the teachers identified the themes in collaboration with the learners, as the theory suggests. The learners in Grade 4-6 are fairly young and may need guidance favouring the teachers' preferences. As Chapter One indicated, this study focused on the Intermediate Phase (IP), and Chapter Three made it clear that the target population comprised teachers teaching in primary schools and

combined schools with an IP, subject HoDs in this phase, and Subject Advisors supporting and monitoring the teachers in the phase.

The second theory was Harden's (2000) Integration Ladder that advanced the theory that integration can only be achieved when knowledge is taught in themes – not subjects within schools. The Integration Ladder comprises 11 steps or stages. It is in Steps 9 (Multidisciplinary), 10 (Interdisciplinary) and 11 (Transdisciplinary) that themes become pronounced and emphasised in teaching.

In the multi-disciplinary step (Step 9), several subject areas are brought into a single programme. Themes, topics or issues are the focus for the learners' learning. The themes would be taught in an integrated manner. The themes or issues could be a structured body of knowledge that transcends subject boundaries, but, simultaneously, they would still be viewed through the lens of subjects. The QUAL data indicated that some teachers prefer to focus on their subjects.

During the interdisciplinary step (Step 10), a further emphasis on themes was said to occur. The interdisciplinary integration moves from just combining subjects to building themes out of a combination of the subjects, and, in the process, the subject perspective may be lost, which would be contrary to the multi-disciplinary approach. Subjects in the timetable would not be denoted as such, and no reference would be made to individual subjects. As it is, this step is a higher level of curriculum integration. From both the QUANT data and the QUAL data – it is not quite clear whether the timetable reflects themes or the name of subjects.

In the last stage, the trans-disciplinary stage, integration goes beyond themes, but looks at real-world problems and how they can be resolved with available knowledge and not just 'themes'. In other words, the last step combines different 'themes' to solve issues that people face every day. As with the interdisciplinary step, the curriculum transcends the individual subjects and themes, and acquired knowledge is to be applied to resolve real-life issues and challenges. Harden (*Op cit.*) termed this authentic integration. Considering the remarks of the HoDs below, as in the case of the Steps mentioned above – it comes out fairly clear that: (i) the subjects are downplayed when using the thematic approach to integration; and (ii) the themes used by

the teachers as a means to integrate are used to resolve real-life issues and challenges.

From the discussions above, it could reasonably be inferred that the teachers' use of themes transcends subjects; furthermore, they are utilised within specific subjects as a means to integrate IK. The researcher believes that if IK could be integrated into the existing school curriculum in the manner described in the previous paragraphs, then it would be the start of the authentic integration as purported by Beane (1995) and Harden (2000).above, and IK would have been validated as important and it would be truly integrated.

Moreover, this finding reveals that **sports** are one strategy through which IK integration manifests. To a degree, this agrees with the finding of Matike's (2012) study that shows that the introduction of indigenous games and sports to learners would further help in the processes to integrate IK – and should be made compulsory at school (Matike, 2012). Furthermore, a study by Palamuleni, Kaya and Koitsiwe (2012) found that the youth utilise IK through indigenous games such as *Morabaraba*, *Dibeke*, *Khokho*, *ugqophu [sic]* and *Khati*. School indigenous sport games currently organised around the provinces of South Africa are consistent with this finding. The sport games include indigenous games like *iintonga*, *mrabaraba*, *jukskei*, *dibeke*, *kho-kho*, and *ncuva* (Piliso, 2018). The researcher cannot but share Piliso's (*Op cit.*) contention that indigenous sports and games not only kept the learners and youth physically fit and healthy, but they revive and preserve indigenous games, so keeping the learners and youth from social ills and teaching positive values. Crucially, in the context of this study, the indigenous sports and games strengthen and support IK-integration processes and implementation. They contribute to the mainstreaming of IK in the school curriculum.

As pointed out earlier, the data collected for this study reveal many strategies that teachers claim to adopt and use during IK integration. Quantitatively, the results show that out of the 9 – the most popular strategies that teachers use are:

- Sharing of lesson material and plans with other teachers. To a degree, this is in line with Step 6 (sharing) of Harden's (2000) Integration Ladder, where two

teachers of (complementary) subjects share their content and teaching. The respective teachers jointly decide to plan and teach the overlapping concepts, skills or attitudes. Harden regarded this Step as signifying a move toward fuller curriculum integration.

- Consulting formally or informally with other teachers about the teacher's own teaching or lessons. This could be aligned, to a degree, with Harden's (*Op cit.*) Step 3 (harmonisation), which occurs when teachers of respective subjects begin to consult and communicate with each other on their subjects. The communications may be in informal or formal settings – like curriculum planning committees and meetings. In the case of this study, the study reveals such curriculum matters are discussed in grade and phase meetings (see Chapter Four and Appendix Q.
- Drawing from other subjects' relevant content, which will enhance lessons. This is, to an extent, consistent with Step 6 (sharing), that was pointed out earlier. To a greater degree, this strategy agrees with Harden's (2000) Step 4 – the nesting stage. Characterising this stage is the drawing and using of skills and content from other subjects in the curriculum to enrich the content of one subject.
- Encouraging learners to always try to make a connection between IK and what is being taught in the subject and other subjects. The method/principle of starting from the unknown and moving progressively to the unknown was discussed earlier. As noted, the principle entails the learners linking their prior knowledge to the new unknown subject matter taught, which, in the context of IK integration, would be the learners' local IK. This result agrees with earlier studies (see Dziva et al., 2010; Yeşilyurt, 2012; Khupe, 2014; Mc Knight, 2015; Jacobs, 2015).

5.1.1.5 Teachers Unsure About Integration and do not Have Lesson Plans or Lesson Preparations for IK Integration

The finding indicates that teachers are unsure and do not have lesson plans and/or lesson preparations that reflected IK integration. This implies that no lesson planning and/or lesson preparation occurs for IK integration. Even though the QUANT shows that 65.6% of the teachers *do* integrate, the QUAL data showed they are unsure. If they are unsure about integration, they might be reluctant and/or unable to draw a lesson plan. This finding seems to be corroborated by the fact that no samples of lesson plans were forthcoming, when the researcher requested them from HoDs. The

unavailability of lesson plans when requested, places doubt on the veracity of the finding that some teachers do actually integrate. That the teachers appeared not to have lesson plans reflecting IK integration – is contrary to the case of teachers in Mc Knight's (2015) study, mentioned in Chapter Two. The participants in Mc Knight's study had lesson plans that mentioned materials and resources that included videos, computers, DVDs and the chalkboard. Even though the QUANT data point to most teachers integrating IK, the QUAL component (also responses to open-ended questions in the questionnaire) provided a clearer picture on the quality of integration.

Challenges teachers have when integrating IK

5.1.1.6 A Plethora of Challenges Impede Proper Integration and Prospects for Integration

This study was based on the assumption that teachers do experience challenges when attempting to implement IK – as revealed by the literature review in Chapter Two. This general finding indicates that there are numerous challenges that serve as barriers and impediments to integration, and which reduce the possibility for integration. The challenges are discussed as sub-themes.



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5.1.1.6.1 Training Very Limited to Non-Existent

The units in Appendix Q Chapter Four, show that lack of training is one of the most frequently stated aspects mentioned by participants. The textual data from the teacher survey also frequently mention this phenomenon. Additionally, the QUANT results show that most of the teachers never received any form of training (41.4%). Those who taught themselves (20.0%) come in second, then formal training (18.6%), informal training (17.1%) and lastly in-service training (2.9%).

This finding concurs with what George (1999) asserted, that teachers who are not trained to deal with IK in classrooms should be a concern (George, 1999). Also, the finding is consistent with earlier studies (see Moyo, 2011; Mothwa, 2011; Matike 2012; Khupe, 2014; Jacobs, 2015). These studies revealed that teachers do not integrate because of a lack of training; teachers find the lack of training to be a barrier to IK; and

IK integration has been left to the discretion of teachers. In relation to the latter point, was Khupe's (2014) assertion that teachers are given minimum support or training. The absence of a clear policy guideline for IK integration from the Department of Education (Ogunniyi, 2004; Matike, 2012), coupled with a lack of training has become a serious impediment to IK integration, and not only for teachers. As pointed out in Chapter Two, District and provincial officials are negatively impacted – leading to the reluctance to implement IKS (Mushayikwa & Ogunniyi, 2011).

5.1.1.6.2 Inadequate Lack of IK Resources and Materials

The lack of IK teaching resources and materials is an impediment to IK integration. As is the case with regard to the lack of training, the lack of resources and materials is an aspect that is frequently mentioned in Appendix Q This finding resonates with findings in other earlier studies (Mothwa, 2011; Matike, 2012; Khupe, 2014; Jacobs, 2015). The lack of resources and teaching materials may be ascribed to the minimal documentation of IK (Kenalemang & Kaya, 2012, Khupe, 2014; Oroma & Ali, 2018). Some authors like Diwu and Ogunniyi (2011) and Matike (2012), asserted that IK is undocumented. It appears that appropriate resources and materials have to be developed and disseminated in order to assist teachers. Informed by the researcher's experience as a teacher, he believes that teaching resources are pivotal in any classroom as a teaching tool to facilitate learning. Resources help concept teaching, demonstrations, simplifying complex content, and creating a proper atmosphere in the classroom. Such resources and materials that speak directly to IK integration are pivotal as one step, among others, to ensure the successful implementation of IK.

5.1.1.6.3 Time Constraints to Focus on IK – Covering of the Syllabus is More Important

Teachers are reluctant to implement IK due to time-constraints, as they have to concentrate on completing the official syllabus. In agreement with the finding is Mc Knight's (2015) study that found that teachers did experience time constraints to teach IK, as they had to focus on completing the syllabus. This finding is also reflected in Keane's (2015) arguments on why teachers do not incorporate IK. As this study revealed, time constraints were not only related to the coverage of the official syllabus.

Teachers apparently have many responsibilities and limited time. The evidence shows that they have to contend with paper-work, administration work, large classes, and the teaching of multi-grade classes (Appendix Q). This revelation is in line with Khupe's (2014) postulate that the traditional curriculum is overloaded – leading to the reluctance to integrate because of time and focus on syllabus coverage. A sceptical teacher-respondent in Muza's (2013) study remarked that the high school science syllabus is congested, and that there was no time to teach what she perceived to be 'irrelevant' information.

5.1.1.6.4 Conflict of Christian values Versus IK Values Leading to Negative Attitudes

Teachers with fundamentalist beliefs, like Christians, can hamper IK integration. They may find their value systems contradicting those of IK (Mothwa, 2011). Mothwa's study found that most participants in her study were bound by their beliefs that made them reluctant to involve themselves with IK, and thus they become negative about infusing their teaching with IK. Believers find some aspects of IK offensive, just like Christians may find traditional healing. This resonates with this finding that teachers' religious beliefs are often in conflict with values inherent in IK. While this study reveals that most teachers integrate, although they are unsure about it, it also reveals that the mixing of IK with Western-Eurocentric knowledge in the curriculum causes various conflict and tensions. In relation to this finding, a sub-theme that emerged in this study was that teachers believe there is space for IK (see Appendix Q). However, it is relatively clear that this space seems fraught with tensions and conflict. The post-colonialist would argue that an integrated curriculum, which is in a decolonised world is constituted by an intellectual space characterised by contradictions, confusions, and hybridity – would also display elements of contradiction, tensions and confusion (Postcolonialism, n.d.). This is to a degree revealed by this finding, if we can agree that South Africa is a decolonised world and the education system is decolonised.

This space, which Bhabha (1994) called the *Third Space*, could be divided into two, and Bhabha labels them *the physical space* and *the ideological space* of the curriculum. To borrow from Bhabha, the physical space is the actual written

curriculum, and the ideological space is located in the belief systems – in the mind as it were.

On the one hand, the tensions and conflicts in the physical space, the written curriculum, are demonstrated by questions like, whose and what IK should be included in the curriculum (Shiva, 2000; Kawell, 2002; Keane, 2015; Webb, 2016), while the tensions and conflicts in the ideological domain are characterised by belief systems like Christian values versus IK-based values. Bhabha's (1994) arguments, as reflected in Chapter Two, that the hybridisation and the mixture of the curriculum in a third space could be contentious and disruptive, is validated by this finding, which shows the conflict of Christian values and IK-based values when there is IK integration.

Also, this finding that reveals that the conflict between Christian values and IK values in teachers lead to a negative disposition towards IK integration in the school curriculum, reflects several authors' contentions that IK integration would result in tensions and conflict because of the disjuncture between IK and Eurocentric-Western skewed curriculum (Balcomb, 2001; Msuya, 2007; Mothwa, 2011; Khupe, 2014; Webb, 2016). The researcher shares the assertions of Beane (1995) and Harden (2000) (see Chapter Two, the theoretical framework) that while there are conflicts and tensions manifesting due to IK integration with Eurocentric-Western biased curriculum – there is a need to bring together the disparate forms of knowledge into a centralised form, where it is easily accessible across different departments or subject areas in the form of a school curriculum.

It is important that issues that result in a negative attitude among teachers be resolved. It is worth heeding the counsel of Huang and Newell (2003) in their theory, *Knowledge Integration Processes and Dynamics* (see the theoretical framework in Chapter Two) – that the most effective knowledge integration comes from the attitudes of individuals and their propensity to learn the knowledge that most strongly influenced the effectiveness of creating common knowledge. In spite of the negative attitude, that 46 teacher-respondents out of the 63 who responded to the question of whether they think that IK integration would benefit their teaching, is encouraging. Furthermore, 61 teacher-respondents out of the total of 67, indicated that IK would

benefit their teaching. It is also encouraging that teachers that integrate IK every day (46.2%) are in the majority, followed by those who integrate once a week (18.5%) – as compared to those who never (27.7%) integrate. This gives us hope that the integration of IK into the school curriculum is possible, provided that the challenges revealed by the findings are resolved. A positive attitude among all educational stakeholders is everything if IK integration in the school curriculum is to be achieved.

5.1.1.6.5 Limited IK Textbook Content and IK Resources as a Result of Colonialism and Apartheid

The evidence from both the teacher survey (teacher textual responses in teacher survey) and the QUAL data reveals that teachers perceive there is little IK representation in textbooks and limited IK-relevant resources they are linked to, and also that the baggage of colonialism and apartheid marginalised IK. The lack of IK resources was discussed earlier and thus will not be discussed here.

This finding resonates with arguments advanced that: school textbooks have little or no proper IK information; IK is presented as examples with hardly any teaching strategies suggested and no practical work can be done in the classroom for the sciences; IK-containing textbooks are not readily available; textbooks are not helpful to indigenous learners; textbooks have just a few cultural activities that are merely case studies; and textbooks have little IK material to support the teachers (Diwu & Ogunniyi, 2011; Mothwa, 2011; Lubben, 2011; Matike, 2012). Concurring, Mapara (2017) stated that in Zimbabwe, textbooks show appreciation of the Western heritage instead of Zimbabwe's heritage. The textbooks, for example, contain school quizzes focused on Western knowledge rather than IK and cultures. The Zimbabwe context mirrors the South African situation.

The finding that colonialism and apartheid are to blame for the current inadequate IK content appears to concur with the arguments of various authors. Msila (2016) argued that through the Calvinistic Bantu apartheid education and colonialism, school knowledge was distorted to ensure limitation of the intellect of learners and teachers and apartheid education led to the exclusion of IKS-linked African philosophies in the

educational curriculum. Higgs and van Wyk (2007) noted that colonialism resulted in the colonial subjugation of IKS. Ngara (2017) asserted that the Western knowledge paradigm rendered many IKS invalid. Oroma and Ali (2018, p. 36) averred that “traditional wisdom”/IK has been ignored by the Western former colonialist. From these assertions, it could be reasonably construed that this finding has an element of truth. The contentions validate this finding that teachers perceive the minimal IK knowledge in textbooks and IK resources as the baggage of colonialism and apartheid. Thus, to borrow from Msila (2016), the time has come to revalidate the status of IK through integration into the school curriculum, by ensuring that under-representation is eliminated. It is reasonable to conclude that apartheid baggage from the segregatory policies of South Africa has had an adverse impact on IKS in the school curriculum (Khupe, 2014), and also on IKS representation in textbooks and on teaching resources and material.

Furthermore, this study, like postcolonialism, was based on an assumption that sought to engage and contest, albeit in a modest way, the legacies of colonialist discourses (Postcolonialism, n. d.) on education and the curriculum. This finding on limited IK knowledge in textbooks and resources, resonates with the postcolonial arguments explored in Chapter Two. Sharp (2008) postulated that through colonialism the knowledge of non-Western peoples generally experienced *epistemic violence* or *epistemicide* (Krijnik, 1999; Tuck & McKenzie, 2015), which is the destruction of non-Western ways of viewing and understanding the world. Meyiwa and Maseti (2015) noted that IK had been relegated to the margins of the hegemonic Western-oriented curriculum. The researcher concludes that postcolonialism argues that Western knowledge enjoys a dominant position in the curriculum at the expense of IK – which has been relegated to the periphery due to colonialism, among other factors, and thus the continued under-representation of IK in school textbooks and resources.


How HoDs and Subject Advisors advise teachers on IK integration

This study sought to establish how HoDs and Subject Advisors advised teachers on IK integration. The study reveals that not much advising is taking place as the individuals concerned were not adequately trained on IK-integration per se. The QUAL

evidence indicates that the Subject Advisors are the most affected. They are not advised themselves, and are expected to be able to advise and to demonstrate IK integration to both HoDs and teachers. From this general theme, the sub-themes below emerged.

5.1.1.7 Teachers to Work as a Team and not in Isolation According to Subject Specialisation

Some teachers appear to work in isolation focusing on their respective subject specialisations instead of striving for team-work as a means to tackle IK integration challenges in the classrooms (see Appendix Q). This finding resonates with the arguments given in the theoretical framework in Chapter Two. Huang and Newell's (2003) theory of *Knowledge Integration Processes and Dynamics*, emphasises the need for specialisation in an organisation – in this case the school. This may be construed to suggest the creation of teams, irrespective of subject specialisation.

Furthermore, Harden's (2000) Step 3,  harmonisation, in his Integration Ladder, advanced what this finding talks to. In Step 3, teachers of respective subjects begin to consult and communicate with each other on their subjects in curriculum planning committees and meetings. The possibilities of integration can be observed as teachers are encouraged to relate their subjects to others in order to contribute to the overall curriculum (*Ibid.*) Also, the researcher considers that the beginning of team-work starts.

In relation to the isolation part of this finding, it appears to be in line with what Harden (2000) labeled in Step 1, isolation, the silo approach. Teachers work in isolation on their respective subject specialisations, which this finding reveals is not what the respondents and participants in this study desire. Huang and Newell (2003) would laud this specialisation approach – in opposition to Beane (1995) and Harden (2000). Beane and Harden appear to favour team teaching that transcends subjects in order for true integration to occur. They called for the amalgamation of specialties or individualities leading to the creation of all-encompassing transdisciplinary knowledge streams. This may be construed to suggest the creation of teams irrespective of subject specialisation, in order to achieve the authentic integration that Beane

propagated. What the finding shows may be interpreted to mean that teachers desire team-work where the emphasis is not on the individual teacher and their individual subject, but on an amalgamation of subjects into a theme-based approach (Harden, 2000), where team work is prevalent, in order for IK integration to be successful.

5.1.1.8 More Indigenous Language Teachers Need to be Employed, as Indigenous Languages are Important

While this finding appears not to speak to teachers but seems to be directed to District and Provincial officials, it nevertheless has relevance for the IK integration project in schools. It reveals that indigenous languages in IK integration are important, and to appoint more indigenous language teachers would add to the momentum and acceleration of IK integration – as indigenous languages are a valuable IK asset. This importance of indigenous languages is clearly demonstrated in Khupe's (2014) study. Khupe's study was conducted in an IsiZulu speaking rural village, Mqatsheni, in KwaZulu-Natal Province, South Africa. Khupe remarked that the IsiZulu language was the key factor that ran through all knowledge in Mqatsheni. IsiZulu was the language used to share knowledge in her study. Other authors like Msila (2016) believe that indigenous languages are of benefit to learners. The negative disposition of learners toward their culture dissipates when learners see their languages being used at schools. Their negative attitude gradually morphs into a positive attitude. The author further elaborated that indigenous languages are significant as they constitute a vital position in African culture and IK in general, because, *inter alia*, language can address issues of social justice and equity. Other authors agree. Webb (2016), using the context of the Maori in New Zealand, suggested that IK inclusion in the curriculum becomes more relevant to and accessible for learners – especially if their indigenous languages are utilised to teach subjects. Mule (1999) and Quiroz (1999) similarly state that indigenous languages are an asset in IK, and thus would play a significant role in enhancing the IK agenda. For the researcher this is so, because indigenous language mirrors culture as the language itself is part of a culture (Ngugi wa Thiong'o, cited by Mule, 1999; Mufwene, 2001) – and thus cannot be ignored or pushed to the periphery when IK integration into the school curriculum is implemented. The language ought to enjoy centrality, because it is through it that all aspects of a culture are communicated.

The second part of the finding that speaks to the employment of more indigenous language teachers, is in line with Msila's (2016) assertion that there is a noticeable drive to recruit more indigenous language primary school pre-service teachers. One of the reasons for the drive could be because of the realisation that indigenous language primary school teachers are pivotal for bolstering IK implementation in schools. The researcher concurs that the teaching of IK through integration ought to start at the foundational levels of the education system, in order for it to have strong roots and to be able flourish progressively throughout the rest of the system. To a degree, this sentiment is shared by Michie (1999), who stated that the best site to teach indigenous knowledge is in primary schools.

5.1.2 Views of IP School Teachers on the Integration of IK in the School Curriculum

Meaning of 'Indigenous knowledge' to teachers

The concept *indigenous knowledge* enjoyed centrality in this study. The researcher sought to determine how the respondents and participants understood IK. It would have been folly to have taken for granted that they know the meaning of IK or that they had the same understanding of the concept. The response to the question is captured in the finding below.

5.1.2.1 Concept of *Indigenous Knowledge* Relatively Well Conceptualised With the Exception of a Few Teachers

It is clear that the teachers have a fair conception of the concept 'indigenous knowledge' – as evidenced in the units in Appendix Q (Units, categories and themes) and the QUANT results in Chapter Four. The words they use to describe and define *indigenous knowledge*, are in line with the numerous descriptions and conceptions of IK proffered by several authors in Chapter 2 (in Chapter Two see Semali & Kincheloe, 1999; George, 1999; Dei, 2000; Berkes, Colding & Folke, 2000; Njoku, 2001; Odora-Hoppers, 2002; Òtúlàjà, Cameron & Msimanga, 2011; Mehta, Semali, Fleishman, & Maretzki, 2011; Eze, 2013; Khupe, 2014; Abah, Mashebe, & Denuga, 2015; Bitzer & Menkveld, 2004, cited in Msila, 2016; Mapara, 2017).

One would argue, with some trepidation, that this finding disproves to a degree the findings of other studies (e.g. Jegede, 1995; Ogawa, 1995; Ogunniyi et al., 1995; Aikenhead, 1996) that teachers have a limited understanding of *indigenous knowledge*. However, that said, the results show that there are exceptions. As evidenced in Chapter Four, several teachers have a very poor understanding of IK.

Attitude displayed by teachers toward integrating indigenous knowledge

5.1.2.2 Not Knowing How to Integrate IK

It is clear from the results and responses that teachers (HoDs included as they teach) do not have the necessary pedagogical skills and expertise for IK integration. Subject Advisors have the same disadvantage. Cautiously, the researcher could consider that the lack of knowledge could be linked directly to the fact that the teachers did not receive adequate training on IK integration – nor did they receive proper policy guidelines from the CAPS documents. This concurs with what studies like those of Matike (2012) and Mothwa (2011) revealed, which highlighted that even those teachers who had knowledge of IKS, often lacked in terms of pedagogy. They simply ignore IK because they do not have the requisite pedagogical knowledge. The knowledge is what Shulman (1986) termed the Pedagogical Content Knowledge (PCK), which is about knowledge of teaching methods and strategies, and Mothwa (2011) noted that PCK included knowledge about learning and learners, the principles of teaching, classroom management, and the aims and purpose of education. It is worth reiterating what the researcher posited in Chapter Two: the PCK should directly address the question of IK integration and be tailor-made for IK integration. Owing to this lack of knowledge, however, the teachers find it difficult to make a paradigm shift – as they only teach according to the old methods they were professionally trained in. The old methods were premised on teaching the old Eurocentric and Western-orientated curriculum (Ogunniyi, 1997; Jansen and Christies, 1999; Ogunniyi, 2004; Thaman, 2009; Mothwa, 2011; Matike, 2012; Muza, 2013, Aldous & Rogan, 2013; Johannson-Fua, 2006, as cited in Abah et al., 2015). Based on this finding, it would appear that there it is true that the lack of training resulting in pedagogical inadequacy among teachers and has largely left IK integration to the discretion of teachers (Moyo, 2011).

The researcher perceives the lack of knowledge to be high on the list of barriers causing teachers not to integrate – and causing teachers who claim to integrate to be uncertain of the consequence thereof or to lack confidence. The researcher believes that the doubt creates an attitudinal block to IK integration in the curriculum.

5.1.2.3 Challenge with Regard to Assessment of IK

It is the opinion of the researcher that the PCK discussed above cannot be devoid of assessment techniques. Assessment and evaluation are pivotal in any education system. This finding reveals that teachers generally lacked the knowhow with regard to assessment strategies or techniques for IK – and this exacerbated their negative disposition toward IK integration. Thus most teachers do not assess IK. This finding echoes to a degree the study of Mc Knight (2015). The study revealed that the teacher-respondents did not assess IKS formally. One participant did, however, indicate to conducting some informal assessment. The teacher-respondents stated that they do not spend much time on the teaching of IKS, as it was not really tested. Diwu and Ogunniyi's (2011) assertion that usually very little IKS is assessed in the final examinations, resonated to an extent with the participants' claims relating to IKS testing. For the researcher, it is imperative that the training of teachers should expose them to ways that IK could be assessed, which may not necessarily be the technique conventionally used for assessing and evaluating a Western-orientated curriculum. The researcher agrees with King and Schielman (2004) that the introduction of IK in the curriculum should never be perceived to mean the dropping of standards. The quality of education should be maintained through assessment and evaluation – to ensure that the quality of the education is ensured and to meet the learning needs of students. Culturally appropriated standards and criteria, as well as general national standards, should undergird assessment and evaluation in an integrated curriculum (*Ibid.*).

5.1.2.4 Importance/Benefits of IK for Teaching and Learning

Despite illustrating a negative attitude toward IK integration, teachers generally acknowledged the importance/benefits that IK would have – if integrated into the

curriculum. This finding shows that the teachers believed that IK integration in the curriculum would variously benefit both teachers and learners. The numerous benefits of IK that respondents and participants believe would enhance and enrich categories in the curriculum are reflected in Appendix Q. This concurs with similar ideas postulated in previous studies and scholarly work. In Matike's (2012) study, the respondent-teachers mentioned *inter alia* the following benefits that IK integration would have: learners will know their culture; local knowledge will be preserved for future generations; and the importance of language and customs will be taught to the learners through IKS. Palamuleni et al. (2012) listed similar benefits. King and Schielman (2004), in apparent agreement with Palamuleni et al. (2012), stated that through the participation of IK practitioners in the curriculum, teaching methods would be enhanced, as some traditional methods of doing things would be incorporated in the curricula of existing subjects. In agreement with Kaya and Koitsiwe (2012), the researcher believes that the benefit of IK would not be confined to the realm of the curriculum, but would also lead to educational-socio-economic beneficiation for local indigenous people.



5.1.2.5 IK is Not Good for Modern Times, the Future and the Job Market

Teachers believe that IK would not be worth integrating into the school curriculum, because it would not benefit current learners and does not hold any value for future prospects and does not prepare learners for jobs: thus the reluctance to embrace IK. This finding appears to agree with Oroma and Ali's (2018) study, which established that some participants harboured negative attitudes toward traditional cultural practices, because they are deemed to be primitive and outdated in these days of formal education, modernisation and urbanisation. Also, to a reasonable degree, Msuya's (2007) study revealed that the younger generation that are exposed to Western education, are less interested in IK – as they perceive it to be outdated and primitive. Msuya attributed this negative attitude to disinformation strategies relating to IK. This research considers that this attitude is a result of the very limited knowledge that teachers have on IK as a concept/construct – because of superficial exposure to and limited insights into IK. With deliberate and conscious training in and with advocacy campaigns on IK – the teachers might change their negative attitude toward IK.

5.1.3 Role Played by Subject Advisors and HoDs In Supporting and Monitoring the Integration of IK into the IP School Curriculum

Support needed by teachers to be able to successfully integrate IKS into their teaching

5.1.3.1 Inadequate Support for Teachers

The outcomes of the interviews revealed that Subject Advisors and HoDs were not trained, and hence they are not equipped enough to render the needed support. This suggests that teachers receive inadequate support for IK integration and this impacts on them adversely when they require advice or guidance. This finding concurs with the contention by Khupe (2014) that teachers are given minimal support. Mothwa (2011) argued that teachers are not guided and supported by the Department of Education, and Hewson et al. (2009) concurred. Moyo (2011) and Khupe (2014) imply that integration is left at the discretion of teachers, in the absence of support. The researcher believes that all relevant education stakeholders should harness their different strengths regarding IK and its integration into the school curriculum, and support the teachers who are generally in need of it.



5.1.3.2 Workshops Needed in the Absence of Formal Training

This study evidently reveals that the respondents and participants need training for Subject Advisors to support and monitor IK integration, for HoDs to teach and supervise IK integration effectively, and for teachers to integrate IK. As earlier discussed, lack of training in and knowledge of IK integration in the curriculum is a significant impediment to the integration of IK into the curriculum. This finding originates from these revelations that teachers, HoDs and Subject Advisors need training to teach and supervise IK integration effectively..

This finding indicates that the Subject Advisors, HoDs and teachers believe that exposure to and learning by teachers about IK and IK integration, would be facilitated through conducting workshops in the absence of formal training. This finding is

consistent with earlier studies. Matike (2012) suggested that workshops would have to be organised to educate school teachers about IKS, in the absence of clear policy guidelines; the participants in Hewson et al.'s (2009) study, regarded workshops as one strategy that could facilitate the implementation of IKS; Jacobs (2015) revealed that the teachers wanted workshops where they could be taught how to develop and test IKS material by hands-on training, and he consequently recommended that in-service training should be conducted through workshops to ensure continuous support to teachers in respect of IKS integration. Huang and Newell (2003) indicated that workshops or seminars are one way of sharing information on common knowledge – even though the most effective knowledge integration came from individuals' attitudes. The researcher contends that the information in the context of this study should be about *how* – the modalities – IK is to be integrated into the curriculum and the workshops should not be confined to the sharing of information only. Workshops should be platforms where the strategies learned are demonstrated and practised by the teachers.



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5.1.3.3 Parental, Community, Outside Experts', and Stakeholders' Involvement Needed

Teachers require that for them to be able to learn about and implement IK into the curriculum, they need support not *only* from the Department of Education – but also from parents, the local community including IK practitioners, and outside experts and relevant stakeholders. This finding resonates with Palamuleni et al. (2012) who found that the involvement of IKS practitioners (parents, grandparents other adults in the community) in the curriculum, and bringing them into the classroom, would preserve IK and promote IK integration. Teachers would also benefit by tapping into IKS practitioners' knowledge about IKS. The involvement of the community knowledge holders in classroom activities, could also have positive spinoffs. For example, the onus to kindle the interest of learners would shift away from being the sole preserve of teachers. The involvement of IKS practitioners may very well bring indigenous knowledge to life for the learners (Palamuleni, et al., 2012). Additionally, through their

involvement, community-based stakeholders would support the teachers and schools by the development of context-relevant teaching and learning materials (Weibesiek, Letsekha, Meyiwa, & Feni, 2013).

In line with the finding and with Palamuleni et al. (2012), King and Schielman (2004) argued that the involvement of parents, grandparents, and the local communities would enhance and introduce teaching methods – as some traditional methods of doing things would be incorporated into the existing subjects' curricula. The researcher concludes that it seems self-evident that the involvement of external parties like IKS practitioners – who are interested in and knowledgeable about IKS – would variously support the teachers. Additionally, the burden and anxiety relating to teaching something as broad as IKS without the necessary guidelines and training, would be significantly reduced. To support teachers in IK integration and for integration to be successful – there must be planning and participative collaboration with knowledge holders in communities (Khupe, 2014).



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5.1.4 Strategies to Implement to Support and Monitor the Integration of IK into the IP School Curriculum

What the national and provincial departments of education should do to support the integration of IK into the school curriculum

5.1.4.1 Clear Policy Guidelines on IK Integration from the Education Department

This finding reveals the need for clear and explicit IK integration policy guidelines to guide teachers and other implementers on the *what* (IK) and *how* (what to do when integrating IK) of IK integration – especially when there is inadequate formal training. The finding concurs with what has been found in other studies. Aldous and Rogan (2013) noted that the policy-makers were more interested in the ideal curriculum when they created the new National Curriculum Statements. They neglected the *how* part when it comes to the integration of IK – and consequently the teachers find it difficult

to integrate. Mushayikwa and Ogunniyi (2011) posited that the districts and provincial authorities show reluctance to implement IKS, because of the absence of guidelines, and Matike (2012) found that the absence of policy guidelines adversely impacted on IKS integration. Consequently, teachers find it difficult to integrate, and thus Jacobs (2015, p. 194) recommended that “the guidelines for teaching [IK] from policy documents need to be clear and explicit.”

What the Education District Office should do to support the integration of IK into the school curriculum

5.1.4.2 Universities Must Play a Role in the Training of Teachers on Integration

For universities to be seen to be shedding the perceived image of their limited contribution to the IK implementation agenda, and their continuous teaching of a Western-Eurocentric curriculum, they need to do more. This finding indicates that respondents and participants believe that the Education District should work collaboratively with provincial universities to assist with the capacitation of pre-service and in-service teachers in relation to IK integration into the curriculum. This finding agrees with the recommendation Jacobs (2015) made in his study regarding what South African universities should do in terms of training teachers in IK integration. The researcher feels it is best to give the recommendation in full, as stated in Jacobs' thesis – in order not to lose the essence of the recommendation:

It is recommended that universities in South Africa should redesign their courses/modules in the undergraduate as well as postgraduate teaching courses to include IKS. Universities should not only equip prospective teachers with IK, but also how to translate this knowledge into effective practice. Therefore, in the pre-service teachers' course practical approaches to teach IK should be built into the course. The universities should change their teacher education program so that the pre-service teachers are provided with experience in how to integrate IKS and science. (Jacobs, 2015, p. 197)

In line with Jacobs, Msila (2016) posited that to empower teachers – education faculties should engage with in-service and pre-service teachers, where they should foster a deliberative culture linked to IKS.

Some literature has pointed out that universities appear not to be doing enough in training their student-teachers or in exposing their general student populace to an IK-sensitive curriculum. Apparently, they still teach a Western knowledge-biased curriculum. Heleta (2016) stated that South African universities continue to focus on a curriculum that remains largely Eurocentric and which continues to reinforce white and Western dominance and privilege. Msila (2016) claimed that faculties of universities are experiencing a challenge of showing their students the importance of IKS – as well as the African experience in general. Ngulube, Dube and Mhlongo (2015) concluded that the pedagogic practices emanating from the colonial era, and which undervalued IK, continue to dominate the higher education landscape and exclude IK in the process. In spite of the scenario painted, however, it is encouraging that studies like that of Jacobs (2015) revealed that there is an indication that higher education institutions are making an effort to include IKS in their curriculum – in order to teach to their students about IK. Moreover, if South Africa's university education departments could be seen to produce new teachers who are open to new ways and philosophies through a teacher education curriculum embedded in an IKS-biased institutional culture – it would mark a significant step in the IK integration project in schools (Msila, 2016).

What schools should do to support the integration of IK into the curriculum in the classroom

5.1.4.3 De-emphasise the Individualistic Subject Specialisation Approach

Overall the respondents and participants believe that to work alone according to subject specialisation would not be the proper approach to IK integration. This finding largely corroborates the finding on team-work discussed earlier.

In agreement with this finding, are arguments within Beane's (1995) theory. The theory completely relegates the importance of subjects to a secondary position in curriculum

integration. In fact, it appears to propagate for the total demise of subjects if authentic integration is to occur. Beane's theory contended that subjects are like silos and the first thing to do to achieve the integration of IK in the school curriculum, would be to break down the walls around subjects. IK is not structured like subjects, and therefore confining IK to standalone subjects would restrict integration. The researcher would infer from Beane's arguments that the total sum of curriculum integration is more than a subject in that IK integration should not be confined to subjects.

The researcher, while conceding that IK is unstructured and generic in contrast to subjects, and that curriculum integration transcends subjects, submits that subjects are also important in integration. The researcher believes that integration could happen *intra-subject* and also *inter-subject* – without having to discard subjects. *Intra-subject* IK integration could be achieved by using relevant IK content from the same subject across different grades and phases in a lesson, while *inter-subject* IK integration could be achieved when relevant content from different subjects (relative to the subject from which the particular lesson or theme or topic originates), are used during integration. The researcher argues that the themes approach (Beane, 1995; Harden, 2000), the community of practice (Mothwa, 2011), and team-work or team teaching, would keep teachers in check, who want to elevate and follow the subject-approach to integration that Beane denounces. The researcher believes that the silo isolationist (Harden, 2000) approach could be countered through fostering a strong school institutional culture that encourages a collaborative approach, in order for IK integration to flourish at school level. The researcher agrees with Huang and Newell (2003), that there is room for specialisation in any organisation – including the school.

5.2 SUMMARY

This chapter discussed the major findings of this study. Themes emanating from this study's research sub-questions were interrogated. The first theme engaged with how teachers integrate IK in the school curriculum. The second theme looked at the views of teachers on IK integration in the school curriculum. The third theme discussed the role of Subject Advisors and HoDs in supporting and monitoring IK.

The last theme focused on the strategies that could be implemented to support and monitor IK integration in the school curriculum.

Summaries, conclusions and recommendations are discussed in the following Chapter.



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CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0 INTRODUCTION

The previous chapter discussed the major findings of this study. This chapter focuses on presenting summaries, drawing conclusions and providing recommendations. To this end, this final chapter is divided into six sections: The first summarises the major findings of this study; the second reflects the conclusions; and the third section explains the recommendations for policy and practice. The fourth section succinctly explains the contribution of this study to new knowledge in the form of a model that would act as framework to coordinate and assist the support and monitoring of IK integration in the school curriculum. The fifth section outlines the limitations of this study, while the last section presents recommendations for further research.



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6.1 SUMMARY OF MAJOR FINDINGS

6.1.1 Summary of Findings on How Teachers Integrate IKS into the School Curriculum

With regard to how teachers integrate IKS into the school curriculum, the study found that integration is not happening at all schools, and where it is happening, it was done unknowingly and unconsciously. In short integration is erratic. The teacher survey indicated that 65.6% of teachers *do* integrate. The remainder, a significant 34.4%, did not integrate at all. The study found that even those who claimed they were integrating were unsure of whether they were doing the integration correctly. The sections further on in this discussion will summarise the reasons for this state of integration.

6.1.1.1 IKS Integration into the School Curriculum Relatively Well Conceptualised

Teachers, HoDs and Subject Advisors have a moderate understanding of the meaning of the construct 'integration of IK in the school curriculum'. This fair conception of the construct was for the researcher a positive sign. It somehow countered the fact that many teachers had challenges with IK integration. The challenges made some not to integrate; others to be unsure how to integrate and to be reluctant to integrate. The reasons for this situation could be linked to previous findings in other studies (see (Mothwa, 2011; Matike, 2012; Khupe, 2014; Jacobs, 2015)).

The following themes emerged with regard to how IK is conceived by respondents and participants:

6.1.1.2 Mixing of local/IK with Dominant Western-Orientated Content Knowledge in the Textbook

The teachers, HoDs and Subject Advisors generally understood IK integration in the school curriculum as hybridisation, that is, the mixing of knowledge emanating from different cultural orientations. IK integration was perceived to be a process of mixing local knowledge/IK with the dominant Western oriented content in the school textbooks in particular, and in the curriculum, generally.

6.1.1.3 Linking the Known Prior Knowledge of Learners to the Unknown in the School Textbook Content

This finding could be associated with the teaching principle and method of starting with the known content/knowledge (IK) and then proceeding to the unknown and unfamiliar content/knowledge (Western content/knowledge) during lessons. For the respondents and participants, *IK integration into the curriculum* meant that IK could be used in lessons as the known prior knowledge of learners that could be linked with the unknown content in the textbook. The researcher interpreted the unknown knowledge to be the unfamiliar Western skewed knowledge.

6.1.1.4 IK Integration is Happening Mainly through Excursions, Sports, Themes, and Projects

This study revealed that the respondents and participants believed that varied teaching methods and strategies could be utilised when integrating IK at schools. Among the numerous teaching methods and strategies mentioned by the teachers, HoDs and Subject Advisors, the ones highlighted and unique were excursions, sports, themes and projects. There was an almost consensual agreement that the strategies could better facilitate IK integration in the classroom, in particular, and in schools generally.

6.1.1.5 Teachers Unsure About Integration and Do Not Have Lesson Plans or Lesson Preparations for IK Integration

Teachers appeared to be unsure about how to integrate IK. Also revealed by this study was that teachers seemed not to be planning and preparing for IK integration lessons. The unavailability of lesson plans when requested for was interpreted to corroborate the latter statement. With no lesson plans as evidence for whether IK integration does really take place, it caused doubts as to the truthfulness of the teachers' claims that integration actually occurs.

6.1.1.6 A Plethora of Challenges Impede Proper Integration and Prospects for Integration

This study revealed many challenges that acted as impeters to IK integration. The sections below summarise the challenges as sub-themes.

6.1.1.6.1 Training Very Limited to Non-Existent

This study established that teachers, HoDs and Subject Advisors had had limited training and no training at all in IK integration. The evidence showed that this was a major roadblock to IK integration in the classroom.

6.1.1.6.2 Inadequate to Lack of IK Resources and Materials

From the evidence, it could be deduced that inadequate appropriate IK teaching resources and lack thereof was a significant barrier to IK integration in the classrooms. The respondents and participants strongly indicated that some intervention had to be implemented to alleviate this challenge.

6.1.1.6.3 Time Constraints to Focus on IK - Covering of Syllabus More Important

The teachers focused on completing the syllabus than on IK integration due to additional responsibilities. Aspects like numerous administrative tasks, paper-work, big classes, teaching of multi-grade classes, and a congested curriculum, resulted in teachers being less enthusiastic to integrate IK and having limited time to integrate. They perceived IK integration as an additional burden to an already congested work schedule. Time was not enough to concentrate on IK integration.

6.1.1.6.4 Conflict of Christian Values versus IK Values Leading to Negative Attitudes



There were some teachers, HoDs and Subject Advisors who showed a negative disposition to IK integration because of their Christian belief systems. These particular respondents and participants indicated that some of the values inherent in IK stood in contradiction to and thus in conflict with their fundamentalist Christian value. They therefore were reluctant to integrate.

6.1.1.6.5 Limited IK Textbook Content and IK Resources as a Result of Colonialism and Apartheid

This study revealed that the teachers, HoDs and Subject Advisors believed IK to be underrepresented in school textbooks. As well, there were limited IK-relevant resources. They ascribed the underrepresentation and the limited IK teaching materials to be a result of colonialism and apartheid.

6.1.1.7 Teachers to Work as a Team and not in Isolation According to Subject Specialisation

Some teachers were adjudged to be working in isolation, focusing on their subject-specialisations. The phenomenon was perceived to be hampering IK integration. Thus, these teachers would have to refrain from the silo approach and instead to work collaboratively with other teachers in a team approach.

6.1.1.8 More Indigenous Language Teachers need to be Employed as Indigenous Languages are Important

The role of indigenous languages in IK integration at schools was viewed as significant. Therefore to elevate indigenous languages in the curriculum to support IK integration, more indigenous language teachers would have to be employed.

6.1.2 Summary of Findings on Views of IP School Teachers on the Integration of IKS into the School Curriculum

6.1.2.1 Concept *Indigenous Knowledge* Relatively Well Conceptualised, with the Exception of a Few Teachers



It was revealed by the study that teachers had an acceptable understanding of the concept 'indigenous knowledge'. However, few of the teachers seemed to have a poor to non-existent conception of the term. The reasons why they had an inadequate grasp of the concept were not revealed by the study. The researcher could only speculate.

6.1.2.2 Not Knowing How to Integrate IK

This finding indicated that the teachers, HoDs and Subject Advisors lacked the necessary pedagogical skills and expertise to integrate IK in the classrooms. For the researcher, the lack of knowledge of how to integrate could be linked - to a significant extent - to the inadequate training and/or lack of training the teachers received on IK integration. Additionally, the CAPS documents did not provide sufficient guidelines on the *how* of integration which further disadvantaged the teachers.

6.1.2.3 Challenge with Regard to Assessment of IK

Teachers indicated that they experienced challenges with regards strategies and techniques to assess IK. Overall, they lacked knowledge on how they were supposed to assess IK. Owing to this lack of knowledge as well as a negative attitude towards IK, most of the teachers ended not assessing IK.

6.1.2.4 Importance/Benefits of IK for Teaching and Learning

The respondents and participants did reveal a negative disposition toward IK integration. Said that, they believed that IK integration would benefit both teachers and learners. Moreover, they supposed that IK would as well enrich the curriculum.

6.1.2.5 IK Not Good for Modern Times, the Future and the Job Market

Some teachers believed that IK was not relevant for learners in the present modern era. It held no worth or value for future prospects of learners in the job market. Also, it was not useful to learners for further tertiary studies. Therefore, they believed it was not worthwhile integrate.



6.1.3 Summary of Findings on Role Played by Subject Advisors and HoDs in Supporting and Monitoring the Integration IK in the IP School Curriculum

6.1.3.1 Inadequate Support for Teachers

Teachers did not receive adequate support, guidance and advice form Subject Advisors and HoDs on how to integrate IK. This study established that this phenomenon was due to the fact that Subject Advisors and HoDs were ill-equipped to provide adequate support due to lack of training and knowledge about IK integration.

6.1.3.2 Workshops Needed in the Absence of Formal Training

The respondents and participants were of the belief that lack of training and/or poor training in IK integration were hampering their efforts to integrate. It is thus that the respondents and participants perceived workshops on IK integration would be useful

to provide them with the opportunity to develop and acquire the necessary pedagogical skills to integrate IK accordingly.

6.1.3.3 Parental, Community, Outside Experts', and Stakeholders' Involvement Needed

Overall the teachers were of the view that they did not receive inadequate support for integration. They believed that to receive full, appropriate and adequate support, then the support should not be the preserve of the Department of Education only. Several relevant stakeholders should contribute to the support. The stakeholders should include parents, the local community, outside experts and relevant stakeholders.

6.1.4 Summary on Findings on Strategies to be put in Place to Support and Monitor the Integration of IK in the IP School Curriculum

6.1.4.1 Clear Policy Guidelines on IK Integration from the Education Department



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This study unearthed the fact that teachers believed that there were no explicit, adequate and well-articulated policy directives and guidelines as to what IK content to teach as well as to how to integrate IK in their classrooms. This contributed adversely to the IK integration agenda in the curriculum.

6.1.4.2 Universities Must Play a Role in the Training of Teachers on IK Integration

Universities had to contribute meaningfully to the IK project by training and preparing teachers to execute accordingly IK integration. The universities, especially provincial universities, would add value to the training of both pre-service and in-service in IK integration in the school curriculum, if they work closely with the Education District.

6.1.4.3 De-emphasise the Individualistic Subject Specialisation Approach

As hinted earlier, the individualistic approach to integration had to be discouraged. Teachers who concentrate on their subject specialisations and who adopt an isolationist approach to teaching would not contribute positively to IK integration. The

preferred strategy for proper IK integration in the school curriculum is a collaborative approach to teaching.

6.2. HUANG AND NEWELL'S (2003) KNOWLEDGE INTEGRATION PROCESSES AND DYNAMICS

Several ideas contained in Huang and Newell's *Knowledge Integration Processes and Processes* were reflected in this study. The findings that spoke to negative attitudes of teachers toward IK integration could be linked to Huang and Newell's idea around attitudes and their impact on producing common integrated knowledge. The participants' advice that the negative attitude of teachers should first be eliminated for integration to take place echoed Huang and Newell's counsel.

Additionally, the finding of teachers preferring a subject specialisation approach to teaching, resonated with Huang and Newell's ideas on the need of specialisation in any organisation.



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Moreover, the respondents' and participants' views that workshops and seminars are necessary to facilitate training in IK integration, could be linked to Huang and Newell's assertion that workshops or seminars could be utilised as one way of disseminating ideas on common integrated knowledge.

6.3 BEANE'S (1995) CURRICULUM INTEGRATION AND THE DISCIPLINES OF KNOWLEDGE

Aspects of Beane's *Curriculum Integration and the Disciplines of Knowledge* found expression in the findings of this study. The finding of bringing together, of mixing IK and Western Knowledge in the curriculum, echoed Beane's notions on centralising two different kinds of knowledge in the curriculum. In this centralised form the dissimilar forms of knowledge would be available to different school departments and subject areas through the school curriculum.

The respondents and participants viewed themes and projects as ways in which knowledge in curriculum should be organised. The view reflected Beane's notions on themes and projects in curriculum integration.

Like the respondents and participants in this study, Beane did not believe that the subject-oriented approach to integration whereby teachers focused on their subject specialisations, would be suitable to facilitate IK integration.

6.4 HARDEN'S (2000) INTEGRATION LADDER: A TOOL FOR CURRICULUM PLANNING AND EVALUATION

Some of the 11 steps of Harden's Integration Ladder theory found expression in the findings of this study. The 11 steps are representations and descriptions of 11 points between subject-based teaching and full integration. They are: Isolation; Awareness; Harmonisation; Nesting; Temporal co-ordination; Sharing; Correlation; Complementary; Multi-disciplinary; Inter-disciplinary; and Trans-disciplinary.



Step 1, isolation, was in line with the respondents' and participants' belief that the silo approach to teaching, whereby teachers focus on their subject specialisations, working in isolation, was not appropriate to promote IK integration.

Step 3, harmonisation, could be linked to the team approach the respondents and participants perceived as better suited for IK integration. For Harden, integration starts during harmonisation, when signs of team work begins to be observed. During this stage teachers of different subjects begin to consult and communicate more with each other in various meetings in the schools.

That teachers, HoDs and Subject Advisors advocated for a theme-based approach to IK integration, related to Steps 9 (Multidisciplinary), 10 (Interdisciplinary) and 11

(Transdisciplinary). It is in these Steps that themes are suggested as a teaching strategy when integrating.

To add, the findings on the strategies that teachers indicated to use during IK integration reflected some of Harden's Steps. The formal and informal consultations amongst teachers about the teachers' respective lessons, resonated to a degree with Step 3 (Harmonisation). The sharing of lessons with fellow teachers and the utilisation of relevant content from other subjects to enrich lessons, could be linked to Step 6 (Sharing). Along similar lines, the strategy of drawing and using skills and content from other subjects in the curriculum, could be linked to Step 4 (Nesting).

6.5 CONCLUSIONS

Based on the issues raised and discussed in this study, and those in the related literature, the researcher concludes the following:



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IK integration at schools, if it is taking place, is not being done properly. There are many impeders that need to be removed, before IK integration can flourish. The impediments range from a lack of training and lack of IK resources to attitudinal challenges from teachers to include clear policy guidelines to guide teachers on integration.

The need for training cannot be over emphasised; it is a must, not only for teachers, but for all curriculum implementers.

Despite the prevalent barriers to IK integration, teachers exhibit a positive disposition toward IK integration. There is a general, palpable appreciation of the value and significance of IK among teachers. The acknowledgement of the importance of IK could be used as a foundation to implement IK integration accordingly in schools.

Teachers are poorly supported, monitored, guided and advised. Those who are supposed to be providing the requisite support are themselves challenged with regard to IK integration knowledge and training.

To implement IK integration, would require a collaborative and concerted effort from school communities and relevant stakeholders in education. It appears that the Department alone would find it difficult to deal with IK integration at schools.

6.6 RECOMMENDATIONS FOR POLICY AND PRACTICE

Bolster the teachers' conceptualisation of 'Indigenous Knowledge' and 'IK integration in the school curriculum'

That the concept *indigenous knowledge* and the construct *IK integration into the curriculum* are generally well conceptualised, augurs well for IK implementation by teachers. This conceptualisation implies that one of the foundation steps could be perceived to be taken, as it would be alarming if teachers were seen not to even grasp what indigenous knowledge is and what *IK integration into the curriculum* entails. The relative conceptualisation would also imply that the Department should bolster the understanding of teachers through formal training and other professional development activities that centre on integration and what IK integration really means. Through proper formalising of IK integration and through deliberate and conscious institutionalisation of IK integration into the curriculum in schools, the teachers may develop confidence in terms of integrating IK in authentic classroom set-ups. This implies that in the meantime, while the Department of Education is considering ways to capacitate teachers who have a poor conception of IK, the teachers should expose themselves to readings on IK and request assistance from IK custodians in the community.

Acknowledge all knowledge and mix/fuse IK in the curriculum

For teachers this implies that they have to acknowledge that it is possible that IK and Western knowledge could be taught together without any knowledge being subjugated or being perceived to be useless or of lesser importance. Any knowledge originating from any culture in the culturally diverse classrooms in South Africa ought not to be ignored. Different cultures in the classroom should be acknowledged and respected.

Use IK as prior knowledge

IK integration can be used as prior knowledge in line with the philosophical teaching principle of starting from the known and moving to the unknown. This pedagogical approach has potential to simplify even foreign complex concepts that emanate from other forms of knowledge that abound in school textbooks. Starting from what the learners know may raise learner confidence and make them confident to explore new knowledge. Using IK as prior knowledge has the potential to raise the interest of learners in IK and kindle respect for their cultures and concomitant knowledge.

Use excursions, sports, themes, and projects as strategies for IK integration

The implication of revealing these strategies as workable in IK integration in the classroom, is that teachers could add to their existing repertoire of teaching strategies, approaches, methods and techniques. They may be able to enrich the repertoire of teachers' teaching methods. Teachers who use mainly so-called 'traditional' teaching methods like the telling method, the question-and-answer method, and the chalkboard-and-chalk method, could deviate from this norm and adopt and utilise the strategies. They are more learner-centred than teacher-centred and thus have the potential to make learning enjoyable, engage learners, and encourage active participation in the learning process.

Plan and prepare for IK integration lessons

The implication is that IK integration into the classroom must be treated like any subject content by the teachers. Teachers must plan and prepare – just like they would do for any lesson. IK integration does not necessarily mean dropping standards or total deviation from the normal basic practices characterising lesson presentation. In fact, IK, by its very nature, would require careful planning and preparation of certain aspects like relevant and suitable IK resources. There, lesson planning and preparation cannot be discarded, just because IK is being introduced. Anecdotal, empirical and experiential evidence shows that well-planned lessons usually are more successful than those that not planned and prepared for. Lesson plans and preparations ensure

proper systematic and focused lesson delivery, and consequentially learning is ensured.

Teachers should read widely, exploit the internet and consult to counter limited to non-existent training

The absence of training or the limited training that teachers receive on IK integration has significant implications for teachers. The absence and limited training, exacerbated by the absence of clear policy guidelines on IK integration, would mean that teachers may struggle forever. In the process, they may lose their confidence, consequently developing a negative attitude toward IK. Attempts at integration may eventually be abandoned. Thus, teachers have to counter this limited and uncoordinated training. Teachers have to read widely, utilise the internet, consult with knowledgeable people outside the parameters of the school and work together with colleagues.

To counter lack of IK integration knowledge, teachers to adapt PCK



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Without exposure through training on the requisite PCK for IK integration, teachers will struggle to implement IK in their classrooms. Without being equipped with and exposed to the requisite knowledge about IK integration teaching strategies, methods, assessment methods, and pedagogical skills – teachers will struggle to implement IK. To counter this anomaly, teachers would have to implement the suggestions in the paragraph above. In addition, they can take further initiatives. Teachers need to be ingenious. They should adapt the PCK they received during their formal training in subject didactics and general theories of teaching and learning – and apply them in IK integration.

As part of the solution to both inadequate training and knowledge, INSET through professional development initiatives that include workshops, should be organised by the teachers themselves. Teachers need to voice their thoughts regarding the nature of workshops and their content. Through their schools' School Management Teams and School Governing Bodies, teachers must lobby the Provincial Department to capacitate Subject Advisors and HoDs to enable them to facilitate workshops where

they learn about IK, observe demonstration lessons, and where they themselves are given an opportunity to practise the skills taught, in the form of micro-teaching lessons or similar. Capacitated Subject Advisors and HoDs would have the necessary IK integration knowledge themselves in order to support and monitor the teachers. Conducting intermittent capacitating workshops would mitigate against the challenges created by a lack of clear and explicit policy guidelines on IK integration.

Supplement inadequate IK resources and limited IK content in textbooks through community consultations and the internet

The implication regarding this is for teachers to solicit assistance from outside the parameters of the school. Local communities are normally a repository of IK resources and have human resources in the form of IK practitioners, parents, grandparents, the elders and traditional leaders. They should be sourced to augment and enrich the limited IK resources and to supplement the content in textbooks. The internet is a rich source of information. It should be exploited by both teachers and learners to enrich their IK content knowledge.



Lobby Education Department to eliminate impellers of IK integration and to work collaboratively with fellow teachers

With the numerous responsibilities that teachers have to meet – teachers can be excused from perceiving IK integration as being an added burden. The teachers through their various formations could lobby the Department of Education to put systemic and curricular interventions in place to eliminate the challenges that impedes integration.

Additionally, teachers should source assistance from colleagues who are integrating relatively well. The call for discarding the silo approach and the call for de-emphasising the subject-approach, is aligned to the latter statement that teachers should source assistance from colleagues who are integrating reasonably well. Teachers have to look beyond their subject specialisation and adopt team teaching – creating in the process a community of practice that supports each other on integration.

*Expose teachers to values inherent in IK to eliminate the clash of belief systems
leading to a negative attitude toward IK*

The National Policy on Religion and Education (2003) allows and encourages respect for different religious views and practices. No religion should be discriminated against. This principle is enshrined in the Constitution of South Africa, 1996, and the South African Schools Act (1996). What this implies is that teachers should be tolerant and open to different views and knowledge – especially if this does not threaten their belief systems. IK fosters universal values of humanism in the form of Ubuntu. As a Christian, the researcher does not perceive the values inherent in IK to be incompatible with those advocated by the Christian faith. Teachers must work on what the researcher perceives to be an attitudinal block, which, occasionally, could be ascribed to ignorance and propagated falsehoods about IK. IK has the potential to enrich the value systems of teachers and learners.



Employ more indigenous language teachers

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There is a drive by some universities to recruit primary school indigenous language teachers. This appeared to be an acknowledgement that IK integration is best introduced in primary school through utilisation of IK to create a solid foundation. It then could progress to be introduced incrementally in the remaining grades. For teachers it implies there are opportunities for those interested in a specialist qualification in IK. This can be viewed as opportunity to get the necessary exposure on IK integration, in and through languages, and to acquire the training in the PCK of IK. Furthermore, this opportunity may open up career options and career progression – as an IK specialist could be called upon to head a language division at school. Moreover, it implies that teachers and learners should not perceive indigenous languages to be of diminished importance when juxtaposed against content subjects in the curriculum.

In addition, a pertinent implication is that teachers and learners must begin to acknowledge the importance and possibilities that indigenous languages inherently

possess. Their importance does not lie only in that they can be utilised as a medium of instruction that benefits the particular language speakers during knowledge transfer in the classroom. Indigenous languages are more than that. They are part of a culture and it is through them that various aspects of culture are communicated in the school context.

Universities must play a meaningful role in training teachers on IK integration

Provincial universities have the potential to significantly contribute to the IK integration project. The Provincial Department of Education already have some form of collaboration or working relationship with the provincial universities, and those beyond the boundaries of the province. The teachers should establish the kind of curriculum the universities teach – with particular focus on the level of IK inclusion in the curriculum. They should establish to what degree the universities still teach an overly Western knowledge-orientated curriculum, especially in the education faculties. Teachers should then variously lobby the Department through their schools and unions' curriculum desks to be offered bursaries to attend at relevant universities, irrespective of whether they are local. This might galvanise the universities to increasingly develop an IK-orientated curriculum for short courses and so forth. Local universities, faced with a possibility of losing financially to universities from other provinces, may then start relevant curriculum restructuring and redesigning processes.

Moreover, an implied assumption inherent in the role of universities in the IK integration project, is that teachers themselves should begin to identify universities with strong IK credentials. That is, they should identify universities whose curricula exhibit a pronounced IK focus, and then request IK scholars or academics to either address them on IK and/or to conduct workshops on IK integration in the curriculum as part of the universities' outreach programme and social responsibility initiatives.

6.7 THIS STUDY'S CONTRIBUTION TO NEW KNOWLEDGE

Proposing an Integrative Comprehensive Model for the supporting and monitoring of IK implementation

In this section, the researcher presents a conceptual, practical, integrative and comprehensive model to act as a simple framework to guide and assist the Department of Education, curriculum planners and curriculum implementers on IK integration into the curriculum. The proposed model is based on the empirical results and QUAL findings from this study that reveals strategies that could be implemented to support and monitor the implementation of IK in the curriculum. The model mainly speaks to the last objective of the study: to come up with research-based strategies to support and monitor the integration of IK in the Intermediate Phase school curriculum. The researcher names the model the *Integrative Indigenous Knowledge Integration Support and Monitoring Model (IIKISMM)* (see Figure 6.1, below).

6.7.1 Presenting the Integrative Indigenous Knowledge Integration Support and Monitoring Model (IIKISMM)



The researcher has developed a model that would assist the District Office to improve their support and monitoring of IK. The improvement part may create an impression that there is a support and monitoring model or framework for supporting and monitoring IK integration into the curriculum. The findings of this study however appear to suggest otherwise; there seems to be no plan at all. The proposed model is presented in Figure 6.1 (below). The model shows which key activities or processes should be observed during the support and monitoring of IK integration into the school curriculum. The activities and processes were drawn from the challenges identified in the results of the QUANT evidence and from the findings of the QUAL evidence. However, and most significantly, they were drawn from the ideas that were responses to the sub-research question: What strategies can be put in place to support and monitor IKS integration into the IP school curriculum? The model is a custom model for IK integration into the school curriculum.

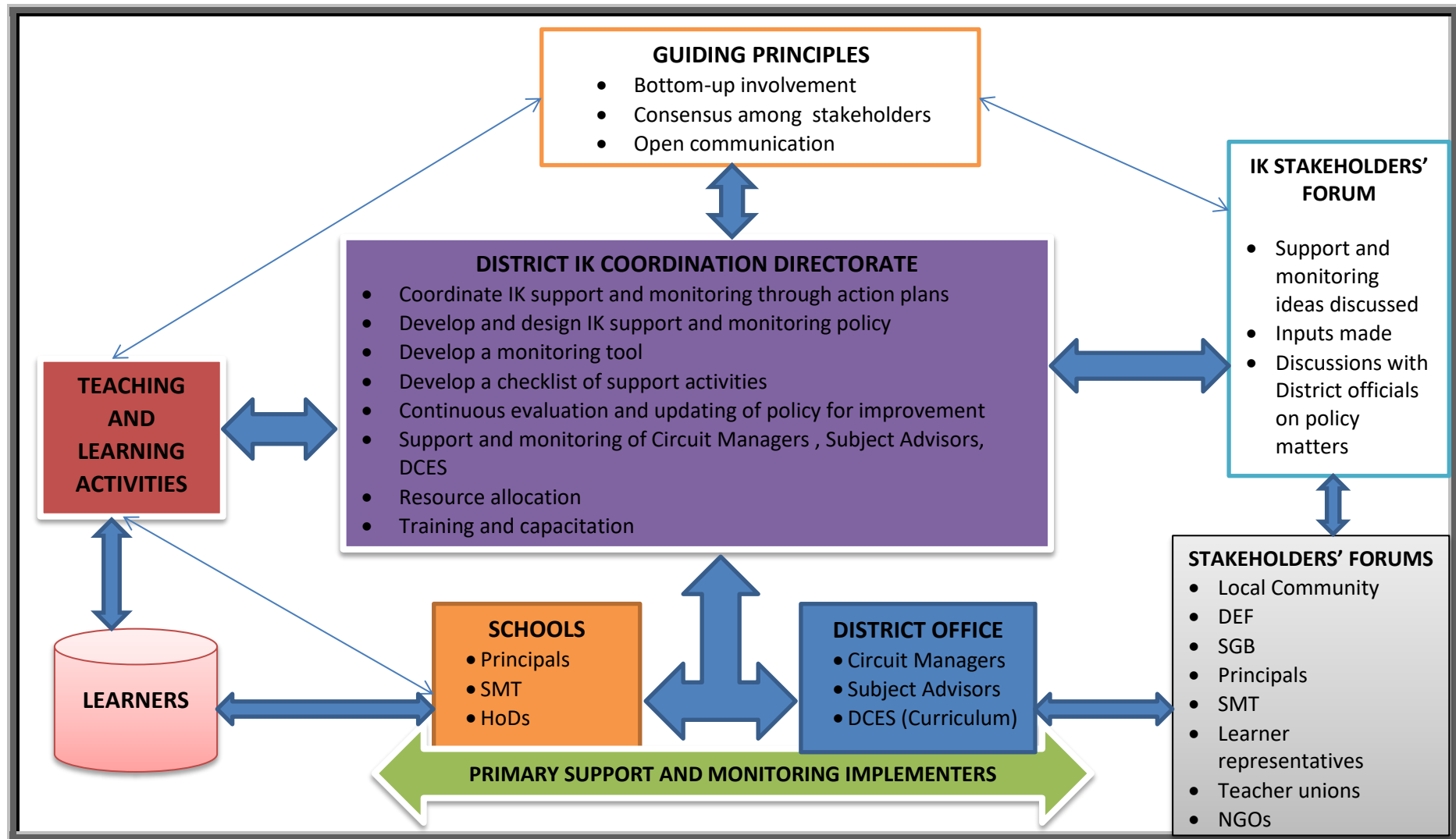


Figure 6.1: Mkosi's Integrative Indigenous Knowledge Integration Support and Monitoring Model (IIKISMM).

The proposed design above is such that the support and monitoring of IK integration and implementation is not solely the preserve of the Department of Education through the Education District only – it also entails the involvement of the school communities. As noted in this study, the nature of IK is holistic. The researcher asserts that a holistic approach to integration is needed. Therefore, this study adapts the adage that education is a societal issue and uses it to declare that the support and monitoring of IK integration and implementation in the curriculum, becomes a societal concern. The model fosters a bottom up, integrative approach to supporting and monitoring IK integration into the curriculum. Based on the evidence collected, the researcher believes that strategies and ways to integrate IK into the school curriculum should be determined by the involvement of varied critical role-players that comprise the school community. The school community normally comprises local communities, various educational stakeholders, and groups and formations in a community that a school serves.

6.7.2 Rationale



From the results of the teacher survey and the findings of this study, it is clear that the support and monitoring of IK implementation in schools is very poor to non-existent. Inferred further from the evidence, there appears to be no framework or plan in the District for coordinating or guiding the support and monitoring processes and activities of IK integration at schools. The Subject Advisors conceded unequivocally that they rate their support and monitoring of IK integration as poor or non-existent – due to lack of training in IK integration and non-availability of guidelines to support and monitor. There were no monitoring tools that are IK integration-specific. The HoDs mentioned similar challenges, among others. Thus, the researcher proposes a model that would act as guide to assist the District Offices in supporting and monitoring IK integration into the curriculum – as per the prescript of the South African curriculum, CAPS. The model suggests a holistic integrative approach to support and monitoring of IK integration. It is holistic and integrative in that the school communities comprising the community, parents and other elders in the community, traditional leadership, education stakeholders in District Education Forums, groups and formations – having a vested interest in education and

district officials – are to be involved. For this model to succeed, however, the school community should convene in an Indigenous Knowledge Stakeholders Forum, where activities and processes that impinge on IK integration in schools are discussed and implementation plans are laid out. The participation of all stakeholders is deemed to be inextricably linked and critical to the success of the proposed model.

This proposed model is an original contribution to knowledge in the field of South African education – with particular reference to the integration of IK in the Intermediate Phase school curriculum. The researcher searched literature to establish whether similar models exist for different school phases – none could be found. Literature did reveal plans and models to assist with the integration of IK in school curriculum *generally*; but models that spoke *specifically* to the support and monitoring of IK integration in the school curriculum could not be located.

The section below provides an explanatory outline of the concepts, constructs, activities and processes in the various components and subsets of the proposed model.



6.7.3 Components and Subsets of the Model: An Explanatory Outline

6.7.3.1 Guiding Principles

- **Bottom up involvement:** This means that all relevant stakeholders at all levels, ranging from the learner to the principal and including the School Governing Body (SGB) and parents should be entitled to have a say in support and monitoring issues. They should feel that they are valuable role-players. This is to ensure a buy-in in the processes and activities that would underpin support and monitoring.
- **Consensus among stakeholders:** The stakeholders in the IK Stakeholders' Forum should agree on matters pertaining to support and monitoring of IK integration. They should have a common understanding and views on issues, so that they can develop a sense of ownership and commitment.

- **Open communication:** The model suggests that open communication channels exist between and among all interested parties. This will keep every stakeholder informed on developments and updates. IK Stakeholders' Forum meetings should be safe communication spaces where ideas are freely deliberated and shared.

6.7.3.2 District IK Coordination Unit

- **Coordination of IK support and monitoring through action plan:** The Unit that would be located in the District Office and could be headed by a Chief Education Specialist (Curriculum) staffed by a Deputy Chief Education Specialist (DCES-Curriculum) and Circuit Managers, would be responsible for devising an action plan that they would centrally coordinate and monitor. The Unit would affect control mechanisms, and would oversee roll-outs of new official policy mandates on IK integration. Central coordination and monitoring of IK integration would counter a fragmented approach where everyone does their own thing – unchecked and uncontrolled.
- **Developing and designing IK support and monitoring policy:** The Unit would be responsible for the development and designing of a support and monitoring IK integration policy that currently appears not to exist. All these activities would be informed by inputs from the IK Stakeholders' Forum.
- **Developing of monitoring tool/s:** The Unit would also be tasked with developing and designing standard IK integration monitoring tool/s for Subject Advisors and HoDs. The tools would be for monitoring pedagogical activities in the classrooms. An IK-specific assessment tool could be devised. Another monitoring tool could be developed for Circuit Managers to monitor Subject Advisors and HoDs on pedagogical IK integration-related issues.
- **Develop checklist of support activities:** A checklist of support activities would be drawn up to guide Circuit Managers, principals, HoDs and teachers on what support to teachers should entail. It would be vital that every role-player is fully aware of what to support, to expect, or to provide relevant to the position occupied. Transparency would be sacrosanct.



- **Support of Circuit Managers, Subject Advisors, and Deputy Chief Education Specialists (DCES):** The Unit would be charged with providing the necessary tools of the trade and other needed resources. The Circuit Managers, Subject Advisors and DCES would, in turn, see to it that the HoDs and teachers are provided with the necessary resources. It would be ensured that the resources are supportive of IK. The finding of the study indicated that there are limited IK teaching resources and materials. This is a challenge that impedes IK integration.
- **Continuous evaluation and updating of policy for improvement:** The Unit, informed by IK Stakeholders' Forum inputs, would continuously evaluate and update the IK integration policy. As is generally accepted, the curriculum is not a static entity – but rather is organic, dynamic and changing. The policy would be expected to respond to changes.
- **Training and capacitation:** The Unit would intermittently assess the training and capacitation needs of the *primary IK integration implementers* (primary IK integration implementers will be explained). The responsibility to identify training and capacitation would not be the sole mandate of the Unit however. Schools would have the right to make input, and so would the IK General Stakeholders' Forum (IKGSF). This model suggests a holistic integrative approach, as noted earlier, and the guiding principle of a bottom-up approach and consensus would have to be religiously maintained.

6.7.3.3 IK General Stakeholders' Forum

- **Support and monitoring ideas discussed:** The IKGSF would be constituted by representatives from various Constituent Stakeholder Forums (CSF) and the District Office. It would meet quarterly. The CSF representatives would present mandates from their respective CSF. In this open and safe platform, the stakeholders would discuss and deliberate IK-related issues generally – and IK support and monitoring matters in particular. It is the perception of the researcher that IK matters cannot be separated from the support and monitoring thereof. The District Officials would share on IK policy development issues with the CSF.

- **Inputs made:** The inputs to be made on support and monitoring matters and IK policy matters, would emerge from the IKGSF discussions and deliberations. If warranted, the inputs could then be taken to the District IK Coordination Unit.

6.7.3.4 Constituent Stakeholders' Forums

These would be individual forums whose representatives would constitute the IKGSF. They would meet quarterly according to their constituencies – prior to the quarterly meeting of the IKGSF. The respective CSF representatives would then make inputs in the IKGSF, as mandated by their respective constituencies.

6.7.3.5 Primary Support and Monitoring Implementers

There are supposed to be actual implementers of the IK integration support and monitoring policy and strategies derived from the various stakeholders' inputs that are fed to the Unit. The primary support and monitoring implementers from the schools would be the principals, School Management Teams (SMT) and HoDs; from the District Office, the Circuit Managers, Subject Advisors and DCES-Curriculum. The principals would support and monitor the SMT, who may include all HoDs; the SMT and HoDs would support and monitor the teachers. The Circuit Manager would support and monitor the Subject Advisors, principals, SMT and HoDs. All would be supervised, supported and monitored by the DCES – on all matters pertaining to IK integration in the school.

6.7.3.6 Teaching and Learning Activities

The teaching-learning activities pertaining to IK integration would be impacted by the implementation of the support and monitoring strategies. The kind of learner outcomes, as per the results of support and integration, would in turn inform and alert the various stakeholders on what works or needs to be tweaked or even discarded in the IK integration policy and/or strategies.

6.7.3.7 Learners

The learners would be the ultimate and central beneficiaries of IK integration support and monitoring strategies. The researcher believes that having all other challenges that this study revealed sorted out – learner outcomes would improve as far as IK is concerned.

6.7.3.8 Significance of the Model

The proposed model would provide a framework that would help curriculum implementers at District level to support and monitor IK integration at schools. The model would ensure that IK integration support and monitoring processes are centrally coordinated and monitored. Centralisation will ensure a uniform approach to support and monitoring of IK integration.

The model is comprehensive and yet simple and practical. The concepts, constructs, and processes contained therein are easy to comprehend; the activities and support and monitoring strategies are also simple to understand and are practical. They will be easy to implement when the necessary systemic interventions and mechanisms are put in place, and when the right attitude and will prevails.

That the model suggests a holistic and integrative approach to IK integration support and monitoring based on guiding principles of bottom-up involvement, consensus and open communication – demonstrates its value. As can be observed, all components and sub-sets of the model are connected, with open two-way and multi-directional communication channels implied by the connectivity. This will ensure synergy between the components and sub-sets.

The model is custom developed and designed to support and monitor IK integration in the curriculum in schools at district level in South Africa. The literature review and the results and findings of this study did not reveal any model or framework for the support and monitoring of IK integration in the selected district, which was the research site, or in the

Eastern Cape Province, South Africa. The model could be adopted by other districts or provinces and modified to fit the context and conditions of the particular district or province.

The model may eventually contribute to and benefit the IK project. The coordinated systematic and systemic support and monitoring of IK integration, could raise IK awareness as a varied number of stakeholders would be involved if the model is implemented as suggested. Word on IK may then spread.

The model has its aim benefitting the learner – the most important primary role-player. The model is not an end in itself, but a means to an end. It is a means to benefit the learner through proper support and monitoring of IK integration that would finally improve the quality of teaching and learning of IK.



6.8 LIMITATIONS OF THIS STUDY

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The researcher acknowledges that this study had limitations that may have impacted adversely on the findings and consequently on its contribution to the new knowledge discussed above.

First, the findings of this study cannot be generalised because the study was conducted in one Education District out of 12 Education Districts in the Eastern Cape Province, South Africa. Only five Subject Advisors, ten HoDs and 67 teachers participated even though the nature of postpositivism and the mixed-methods approach that was adopted and employed in this study, permitted this. The nature of postpositivism and the mixed-methods approach allowed for elements of other paradigms to influence this study, to a degree. One of those paradigms was interpretivism (see Chapter Three). The attribute of positivism that influenced this study, was that the size of the sample does not matter that much. What mattered was the how the data collected were utilised.

Second, the language issue was a limitation. Generally, most teacher-respondents were isiXhosa first language speakers, and English was their second language. Thus they had limited linguistic competency in English. The language quality of their textual responses in the survey indicated language challenges. Two Subject Advisors and some HoDs were not particularly fluent in English, and the researcher had to prompt them intermittently, because of their apparent limited English vocabulary.

Third – time and financial constraints and work commitments were a limiting factor. Time was limited in terms of sampling more schools that would have had to be visited to distribute and collect completed self-administered questionnaires. This was exacerbated by work commitments as the researcher could not secure time off to focus on this study. The vastness and ‘rurality’ of the research site was also limiting. This study was mainly self-sponsored, with many hidden financial implications. Consequently, fieldwork had to be restricted.



Last, that the researcher could not engage with other aspects that needed follow-ups and close scrutiny – is considered to be a limitation. This study could have been enriched and its reliability enhanced if the researcher had conducted classroom observations to test the veracity of teachers’ claims, on how they integrate IK in the actual classrooms.

6.9 RECOMMENDATIONS FOR FURTHER RESEARCH

A comprehensive study based on observations of teachers integrating in authentic classroom settings is strongly recommended. Such research would help develop teaching strategies that could assist teacher training on IK integration. Furthermore, this study revealed that there is a paucity of literature on how teachers actually do IK integration in the classroom, and thus such a study could help close this gap.

Indigenous knowledge integration in the Intermediate Phase school curriculum

Another aspect that could be researched is how indigenous languages promote IK integration in schools. It came out strongly in this research that indigenous languages may facilitate IK integration and the elevation of the status of indigenous knowledge in the curriculum would have additional spin-offs like improved performance and an improved and confident teaching corps.

Research on the training of pre-service teachers on IK integration would be another area that could be considered.



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Appendix A: Sample - completed teacher self-administered questionnaire

Nkosinathi Mkosi/Teacher Questionnaire

Title of the Study

Integration of indigenous knowledge in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa

TEACHER QUESTIONNAIRE

INSTRUMENT 1

INTRODUCTION

1. Purpose of this questionnaire:

The **main aim** of the study is to investigate how indigenous knowledge is integrated in the Intermediate Phase school curriculum. This questionnaire focuses on issues that have to do with the integration of indigenous knowledge in the Intermediate Curriculum school curriculum. Your responses will provide information on the issues and will lead to deeper understanding on classroom processes and practices that occur during integration.

2. Anonymity and Confidentiality:

In administering this questionnaire, I am bound to conform to the ethical considerations of research. Information gathered here about you will **not** be shared with others for purposes other than research. I consider sharing of information about you as unethical. Therefore, your name, the information about you as an individual and the name of the school you teach at will be kept confidential.

To ensure that you remain anonymous, I will not record your name, the name of your District, the name of your Circuit Management Centre, or the name of your school anywhere on the questionnaire to make sure that no one links you to the answers you give. I only will have access to the information. The information will remain confidential and there will be no "comebacks" from the answers you give. You therefore will not be prejudiced in any way by the responses you give. A strict level of confidentiality will be adhered to. **Therefore, I ask you to be as open and honest as you possibly can.**

Please, it should be made clear that you are not forced to take part in this survey. Kindly note that the choice whether you participate or not rests entirely on you. However, I will really appreciate it if you could share your thoughts with me. Should you choose not to answer questions on the questionnaire, you will not be penalised or affected in any way.

Also, understand that even if you agree to complete the questionnaire, you also have the right to indicate any time to me that you do not want to continue with completing the questionnaire anymore. You will be excused and you will suffer no penalties at all.

3. I will collect the questionnaire personally at school or anywhere we mutually agree on.
4. Feel free to contact me at the following: cells 082 867 6606/071 55 678 50; fax 086 547 0899; e-mail nkosinathimkosi@gmail.com

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

PART A- YOUR BACKGROUND

For each of the following questions, make a mark (X) in only one box for the answer.

A1	What is your gender? 1= Male 2= Female	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
A2	To which population group do you belong? 1= Black African 2= Coloured 3= Indian or Asian 4= White	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
A3	Which language do you speak most often at home? 1= Afrikaans 2= English 3= IsiXhosa 4= IsiZulu	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4
A4	To which qualification category do you belong? 1= No Matric, No training 2= Matric with no training/ REQV10 3= Standard 6,7,8,9 + 2years training/ REQV11 4= Matric + 1 or 2 years training/ REQV12 5= Matric + 3 years training / REQV13 6= Matric + 4 years training / REQV14 7= Matric + 5 years training / REQV15 8= Matric + 6 years training/ REQV16	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 8
A5	To which religious group do you belong? 1= Christian 2= Muslim 3= Hindu 4= Jewish 5= Indigenous religion 6= None of the above	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6
A6	How long have you been teaching? 1= Less than 1 year 2= 1 – 5 years 3= 6 – 10 years 4= More than 10 years	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4
A7	At what type of school are you teaching? 1= Primary school 2= Combined school	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2
A8	What grade do you teach? 1= Grade 4 2= Grade 5 3= Grade 6 4= Two grades of the above 5= All of the Grades	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Instructions: Please answer the following questions as honestly and as fully as you can. There is no right or wrong answers to any of the questions. Please carefully read all questions and write your answers in the spaces provided. Use examples to explain/ defend each of your answers where required or necessary.

PART B: HOW TEACHERS INTEGRATE INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM

Question B1

What subject/s do you teach?

1. NS/Tech 2. Life Skills 3. Isifundo 4. Social Science

Question B2

Are you aware that the new curriculum (Curriculum and Assessment Policy Statements-CAPS) allows for integrating indigenous knowledge in the curriculum? YES 1 NO 2

Question B3

What is your understanding of 'integration of indigenous knowledge in the school curriculum'?

This can mean that you use indigenous knowledge together with the other content in the curriculum when you teach. Indigenous knowledge should be used with other knowledge in the curriculum and it should also be taught in the classroom together with other content.

Question B4

Do you integrate 'indigenous' knowledge in your teaching? YES 1 NO 2

Question B5

How do you integrate 'indigenous knowledge' in your subject in the classroom?

Am not sure about my ad hoc usage of I.K. in the classroom could be called integration, but I do use examples and other material in the textbook when there is I.K. content when I teach. I let the learners discuss topics or theories using examples of their culture and traditions.

3

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Question B6

How frequent do you integrate indigenous knowledge in your lessons?

- 1=Once a week
- 2=Everyday
- 3= Once per quarter
- 4= Once per month
- 5=Never

Question B7

Which of the following 7 teaching strategies best describe **your teaching strategy** when you integrate 'indigenous knowledge' in your lessons? Please put a mark (X) where relevant.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	You organise your lessons without considering other subjects	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
2	You share your lessons material and plans with other teachers.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
3	You consult formally or informally with other teachers about your teaching or lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input checked="" type="checkbox"/>
4	You draw from other subjects' relevant content that will enhance your lessons.	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5	You arrange with other teachers of other learning areas to teach on the same day topics related to your topic of the lesson.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
6	You plan your lessons jointly with another teacher whose learning area is related to your learning area .	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input checked="" type="checkbox"/>
7	You teach some common topics of different learning areas as a team.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input checked="" type="checkbox"/>
8	Your school make time in the timetable to teach themes or topics that are common in different subjects/learning areas.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input checked="" type="checkbox"/>
9	You encourage your learners to always try to make a connection between indigenous knowledge and what is being taught in your subject and other subjects.	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Question B8

How can teachers be assisted to successfully integrate 'indigenous knowledge' in their subjects?

They should be guided, trained, motivated by principals, teaching methods should be taught to them. They should be evaluated on their understanding of integration. Subject advisors, curriculum experts, circuit managers, principals should be trained too so that they assist the teachers in integration.

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Question B9

The 5-point rating scale shows the frequency of actions taking place during your lesson. It is not a judgment of the quality of these actions. The meanings of the numbers are:

- 1 – Not at all
- 2 – Occasionally
- 3 – Some of the time
- 4 – A lot of the time
- 5 – Frequently

You:	Ratings (Circle)
B9.1 Create a space for local indigenous knowledge when you prepare your lessons	1 2 <u>3</u> 4 5
B9.2 Use indigenous knowledge to introduce the lesson topic	1 2 3 4 <u>5</u>
B9.3 Create a space to facilitate integration of indigenous knowledge during the lesson	1 <u>2</u> 3 4 5
B9.4 Allow learners to use indigenous knowledge of their local communities in classroom tasks	1 2 3 4 <u>5</u>
B9.5 Use teaching aids with indigenous knowledge content	1 <u>2</u> 3 4 5
B9.6 Use indigenous knowledge only during the conclusion phase	1 2 <u>3</u> 4 5
B9.7 Incorporate indigenous knowledge in your learner assessment activities	1 <u>2</u> 3 4 5
B9.8 Teach indigenous knowledge content separately from the lesson content	1 2 3 <u>4</u> 5
B9.9 Find it difficult to integrate indigenous knowledge in your lessons	1 2 3 <u>4</u> 5
B9.10 You only talk about indigenous knowledge but never use it in your lessons	1 2 <u>3</u> 4 5

PART C: VIEWS OF TEACHERS ON THE INTEGRATION OF IK IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM

Question C1

What does 'indigenous knowledge' mean to you?

It is the cultural knowledge of a community. It is the values and principles passed on from the parents to the children. It has to do with the traditions of the community.

Question C2

Do you think integrating 'indigenous knowledge' in your lessons would benefit your teaching? Please put an **X** in the relevant box.

1 YES 2 NO 3 UNSURE 4 DO NOT KNOW

Please explain your answer.

It will make the teaching of difficult concepts more easy. I would be able to use knowledge that the learners know to explain better. I can also make examples that the learners know from their local traditions.

Question C3

Do you think **your learners** would benefit from your teaching when you integrate indigenous knowledge in your lessons? YES NO

Please motivate your answer.

Learners will better understand when they learn about their everyday knowledge at home and in the community. They will understand how their knowledge compare with knowledge of other people in the world or nations.

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Question C4

Please indicate how strongly you agree or disagree with the following statement. Please put a mark (X) where appropriate.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
C4.1 Integration of indigenous knowledge in the curriculum will benefit my teaching.	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C4.2 Integration of indigenous knowledge will benefit my learners.	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C4.3 I do not integrate indigenous knowledge because I did not get training to do so.	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C4.4 I do not integrate indigenous knowledge because I do not see its value in teaching and learning.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input checked="" type="checkbox"/>

Question C5

What kind of training did you receive in integrating 'indigenous knowledge' in the curriculum or in your teaching? Please put a mark (X) where applicable.

- Informal training
- Formal training
- Never received any training
- In-service training
- Taught myself
- Other ways (Please explain)

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Question C6

Please indicate how strongly you agree or disagree with the following statement. Put a mark (X) in the box to show your choice.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
C6.1	Including indigenous knowledge in my lessons makes/will make my teaching better.	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.2	Including indigenous knowledge in my lessons benefit/will benefit my learners.	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.3	Including indigenous knowledge in my lesson makes/will make my lessons more understandable to my learners	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.4	My learners enjoy/will enjoy my lessons more when I integrate indigenous knowledge.	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.5	Using teaching-learning materials with indigenous knowledge content enriches/will enrich my lessons.	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Question C7

The new curriculum (CAPS) states that indigenous knowledge should be included in the curriculum. Is it possible to adhere to this statement? YES NO

Are there any challenges you foresee that would make integration difficult? Please explain.

Subject Advisors, Circuit Managers HoDs, teachers who are not trained will be a challenge. Resources that are proper and enough from the Dept will be inadequate. There will be no enough teaching-learning material and time to teach.

PART D: SUPPORT AND MONITORING OF INTEGRATION OF INDIGENOUS KNOWLEDGE BY SUBJECT ADVISORS AND HoDs

Question D1

D1.1	Do you need support to be able to integrate 'indigenous knowledge' in your lessons?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
D1.2	Do you get the support you need?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
D1.3	If yes, is the support you get adequate?	YES <input type="checkbox"/>	NO <input type="checkbox"/>

NA

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Question D2

How would you like to be supported when you integrate or want to integrate 'indigenous' knowledge' in your subject?

I need to be formally trained and mentored. Teaching methods on how to integrate should be explained to me. The subject Advisor, Principals, District officials like Circuit managers should guide and give advise.

Question D3

Please indicate how strongly you agree or disagree with the following statement. Put a mark (X) in the box to show your choice.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
D3.1	My subject HoD is knowledgeable about integrating indigenous knowledge and supports me with my integrating lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
D2.2	Although my subject HoD is not knowledgeable about integrating indigenous knowledge, s/he supports me anyway with my integrating lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D2.3	My subject HoD monitors my lessons when integrating indigenous knowledge.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>

Question D4

Please put mark (X) in the box next to the word that would best describe the frequency of the support you get from your subject HoD.

D4.1 How frequent does your subject HoD support you with your lessons when you integrate indigenous knowledge?	Regularly	<input type="checkbox"/>
	Sometimes	<input type="checkbox"/>
	Seldom	<input type="checkbox"/>
	Never	<input checked="" type="checkbox"/>
	Once in a while	<input type="checkbox"/>

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

Question D5

Please indicate how strongly you agree or disagree with the following statement. Put a mark (X) in the box to show your choice.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
D5.1	The Subject Advisor <i>is knowledgeable</i> about integrating 'indigenous knowledge' and <i>advises</i> me on how to integrate.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input checked="" type="checkbox"/>
D5.2	Although the Subject Advisor is <i>not knowledgeable</i> about integrating indigenous knowledge, she/he <i>supports</i> me anyway with my integrating lessons.	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.3	The Subject Advisor <i>does not</i> support me.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.4	The Subject Advisor <i>monitors</i> my lessons when integrating indigenous knowledge.	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.5	The Subject Advisor <i>does not</i> monitor my integrating lessons at all.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>

Question D6

How would you like the Subject Advisor to assist you when you integrate 'indigenous knowledge'?

The advisor should advise, should tell me about strategies to integrate the knowledge. He should arrange workbooks and information through sessions, generally he should be a guide and be able to identify my challenges when I integrate.

Question D7

In your opinion, does the Learning and Teaching Support Material like textbooks and workbooks contain enough indigenous knowledge-content that assist you when you integrate indigenous knowledge during your lesson?

Please motivate your answer:

Not necessarily. The textbooks for some subjects have some knowledge but I think it should be increased. There is a lot of useful knowledge in the community of the school.

PART E: STRATEGIES TO SUPPORT INTEGRATION OF IK IN THE INTERMEDIATE SCHOOL CURRICULUM

Question E1

What would you like to see the **national and provincial Departments of Education** do to support the integration of indigenous knowledge in the school curriculum?

It should look at the curriculum of subjects and revise them. The policy on curriculum should be clear what knowledge should be taught. It should provide training and resources.

Question E2

What would you like to see the **District Office** do to support the integration of indigenous knowledge in the school curriculum?

The District must organise training sessions for teachers. It should provide resources that are indigenous knowledge friendly. It should create a space for teaching I.K. in the classroom.

Question E3

What **particular strategies** would you like to see **put in place at school and class levels** to support integration of indigenous knowledge in the curriculum? Why?

The school should support teachers. The community should be encouraged to identify local I.K. that is to be used in the classroom.

Indigenous knowledge integration in the Intermediate Phase school curriculum

Nkosinathi Mkosi/Teacher Questionnaire

OPTIONAL SECTION

Should you need to make any additional comments on integrating indigenous knowledge in the curriculum, you may use the space below.

The Matric and Provincial
depts must have advocacy campaigns
for S.C. subjects must be
catered for with resources to teach
indigenous knowledge.

There is no enough time-space in
the time-table to integrate properly.
Also all sectors of the school should
be trained. Enough space in the
textbook should be created for
more content of indigenous knowledge.

The learners only learn mostly
about other cultures. They should
learn about theirs by learning
from indigenous knowledge.

Maybe I'll be able to integrate
better if I'm happy.

Thank you for your time and effort to complete this questionnaire.

Appendix B: Sample - interview transcript with Subject Advisor

SUBJECT ADVISOR #1 INTERVIEW DATASET

ABBREVIATED WORDS:-

1. Researcher (RS)
2. Subject Advisor (SA)
3. Head of Departments (HoD)
4. Questions (Q)

PART A: BACKGROUND INFORMATION

RS: We will start with Question A1 of Part A, which deals with your background information. Is it fine with you?

SA: Yes.

Q A1- RS: What is your gender?

SA: Female, of course! (*Laughter*)

Q A2- RS: How old are you?

SA: I'm 54 years old.



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Q A3- RS: Which language do you speak most often at home?

SA: IsiXhosa

Q A4- RS: What is your highest academic qualification?

SA: M. Ed

Q A5- RS: What is your professional qualification?

SA: B. Paed.

Q A6- RS: Before your current position as SA, how long have you been a teacher?

SA: I've been a teacher for 28 years.

Q A7- RS: How many years have you been in your current position?

SA: 8 months only.

Q A8- RS: How do you find your current position?

SA: Challenging.

RS probing: Why?

SA: It comes with added responsibilities and involves a lot of accountability. I have to advise a wide range of teachers in grades 4-9 in the teaching of English as well as Afrikaans spread over a wide area. It's really tough most of the times. If teachers don't

perform, I have to account to *abaphathi* (Supervisors), you know the big guys at Head Office (*Laughter*).

RS: Thanks.

RS: We now proceed to PART B which deals with how teachers integrate IKS in the school curriculum.

SA: Okay.

PART B: HOW TEACHERS INTEGRATE

Q B1- RS: Do you attend the teachers' classrooms when they present lessons?

SA: I have not yet done that although that is part of my job.

RS probing: Why don't you visit the classrooms?

SA: I do not get the chance and time because I have to advise teachers face to face and don't get the chance to go to classrooms and I've a lot of teachers to deal with.

RS probing: How many schools or teachers do you support?

SA: 235 schools...that's a lot.

RS probing: 235? Is it teachers or schools?

SA: Schools. The District has become quite big with the restructuring of the Districts from 23 Districts to 12 Districts. Now I have inherited a large number of schools that belonged to other Circuits in other Districts. I supervisor both Intermediate Phase and Senior Phase. It's really a big problem. The government must employ more Subject Advisors. We are dying.



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Q B2- RS: What do you understand about the integration of indigenous knowledge systems in the curriculum'?

SA: I believe it is the inclusion of the knowledge we have always had as African people outside of Western Knowledge into the curriculum at schools. It may also mean that we as teachers - I'm a teacher myself – should use the knowledge that we have learnt in our communities when we teach topics, themes, whatever and mix it with the Western knowledge found in our textbooks and curriculum in general. We must make room for it. That's my understanding.

Q B3.1- RS: Based on your experience, explain what do teachers under your supervision do when they integrate indigenous knowledge in their teaching?

SA: I must be honest here Sir. I have said I don't have the chance to visit their classrooms and to be honest I never thought about this topic of integration of indigenous knowledge. My understanding is very limited. It is now that I'm thinking about it. My knowledge is theoretical only learnt in theories on integration in the curriculum at university.

RS probing: Why is it so?

SA: Tyo (*exclamation*)! I was never exposed to it myself. It was never emphasised in my training and experience as a teacher. I didn't even know or think how it can be used in my subjects English and Afrikaans until now. But now that I have the opportunity to think about it I can think of ways they can integrate it, that is indigenous knowledge...

RS probing: How can they integrate?

SA: Now that I think of it, they can include the knowledge of their culture, history and traditions as examples when they explain certain things, the explanation method, you

know, they can also use the example method. They can tell stories of the past and relate them to the topic which they teach.

Q B3.2- RS: Describe the challenges the teachers have when integrating indigenous knowledge.

RS probing and prompting: I know that you've already said that you have never thought about integration and you haven't yet visited their classrooms. But what do you think would be the challenges?

SA: What comes to mind first is that there is a general scarcity of resources. There must be relevant resources. Also there is little or no indigenous knowledge in the textbooks as far as I know. The attitude of the teachers may be another problem. They don't generally like what they think is extra work that would need extra planning and preparation as they normally claim they have a lot of other admin work, you know, paper work that they have to submit and so on and that some of their classes are big as they have to in a multi-grade set-up. Most of them, like me I think, don't have a clue as to integration as they were not trained. As a Subject Advisor I don't even guide them or advise them. With regards the children is that the learners as children are less inclined to appreciate it as they are more exposed to the modern ways and knowledge which they see in the media, celebrities and role models who epitomise the life they aspire to live.

RS probing: Why do you think there is limited indigenous knowledge content in the textbooks?

SA: (*Clearing throat*) Now Bawo (*Sir*) you take me to politics nhe...you know that we have been colonised for a long time and also there is apartheid that we come from. Look at what history we learnt about and we continue to teach. It only deals with current topics and the liberation history of South Africa. There is little or no enough history of earlier times that highlight the way we lived. The Whites or the colonisers during colonisation simply pushed aside our history and our indigenous knowledge because of their intentions to have power over us, to get us lost. It's just like that, our kids are lost, we also as parents and teachers look down upon our own knowledge. We think it is old fashioned and backward and doesn't have any value. This is so because of colonisation and apartheid. You see the students at universities have started to see and understand this. You are aware *mos*, of the calls by Rhodes and UCT students calling for the decolonisation of the universities, this is because they are becoming more aware...there must be more of teaching indigenous knowledge. Maybe this integration may assist to change the attitudes that are negative...

RS probing: So you think there is space for indigenous knowledge in the school curriculum of the Intermediate Phase?

SA: Definitely...there is space in all of the curricula of the various Phases including university. The modern can be taught through examples from the old knowledge and vice versa. Yes, of course these different cultural knowledges can be mixed, that is they can be taught together.

Q B4- RS: I will not ask this question on how you usually advise teachers on integration on the basis of our discussion. Am I right to think so?

SA: Yes. I've never advised on integration and now maybe I'll start to talk to them about integration and how they can do it.

RS probing: What would you advise them on?

SA: I would tell them of the importance of integration and the possible ways or teaching methods that can be used as I stated before when we talking about how they integrate.

Q B5- RS: On the basis of your earlier responses it will do no justice to ask you the Q on when during the lesson presentation do teachers mostly use indigenous knowledge.

SA: Yes. But I can now tell them that they would use it in topics to give for essay writing, debating and in construction of sentences but as for now this is not necessary the case.

Q B6- RS: For this question too on the frequency teachers use indigenous knowledge during their teaching, it will be difficult to respond. Is it so?

SA: Yes. So far, I do not know teachers to be using this knowledge in their teaching as I've never visited them in class.

Q B7- RS: What teaching methods would you suggest to integrate indigenous knowledge in the Intermediate Phase school curriculum?

SA: As a language person I would suggest that debates take place using topics related to indigenous knowledge. Also essay topics can be given relating to it. Classrooms classroom discussion can be generated that would lead to their learners knowing and appreciating their indigenous knowledge.

RS probing: Why would specifically suggest these teaching strategies?

SA: Because they are perfect for the language teacher to encourage integration. They'll encourage learners to research, to talk and write about indigenous knowledge.


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Q B8- RS: You wouldn't know of any particular teaching methods or approaches that teachers use when they integrate, would you?

SA: Yes. I do not know of any such because I am not aware of any teacher really employing this integration and I've never observed them in a classroom setting.

RS: Let's move to PART C.

PART C: VIEWS OF INTERMEDIATE PHASE SCHOOL TEACHERS ON THE INTEGRATION OF IKS IN THE SCHOOL CURRICULUM

Q C1- RS: What is your understanding of 'indigenous knowledge'?

SA: This is knowledge based on the teachings of our African sages, culture and traditions as well as our ancient histories and indigenous African languages.

Q C2- RS: Based on your experience, would you say that teachers are aware that the new curriculum policy statements make room for the integration of indigenous knowledge in the curriculum?

SA: In my view as a teacher too is that maybe some have but in my subject English they may have never have considered integrating it just like myself as a Subject Advisor. You see, Sir, I've just realised that we don't know much about this integration as we never

looked closely at it even if it stands there in the CAPS [Curriculum Assessment and Policy Statements] documents that we must integrate. There never was any formal or informal training for that regarding this, training which would have allowed us to deal more closely with integrating...that's all I can say.

Q C3- RS: What attitude would you say is displayed by teachers towards integrating indigenous knowledge?

SA: Their seemingly non-caring attitude maybe related to the fact that they do not know about it...this is something that teachers do not consider delivering because the curriculum as it is now is packed it is vast and teachers will not have time for integration. As I've said there is just too much to do and this will definitely impact on the attitude of the teachers. Maybe if they are sensitised through training as I've said, attitudes may change. The marking, the paper work, moderations, planning and huge classes in some of the schools especially those that multi-grade with few teachers and limited infrastructure like classrooms, these challenges lead to negativity at times especially when new things are introduced. I now realise it is not a new thing this integration as it is in the CAPS document but it is new to me and to many teachers I'm sure because they never had the exposure.

Q C4- RS: It is clear that your view is that teachers are not adequately trained so I would not ask this question. Do you have anything further thing to say on the adequacy of training of teachers?

SA: Yes they are not necessarily trained adequately but I can just to emphasise that us as both teachers and as Subject Advisors have never received any training, informal or whatever. Especially as far as my subject is concerned. Teachers maybe integrating unknowingly or when they feel it is the right topic without even knowing maybe. No definitely teachers have never been trained and we need some intervention like workshopping, some sort of in-service training, and guidance as to what to do and some advice and also relevant resources so that we bring indigenous knowledge in our schools and classrooms. CAPS must be clear on the content and include this in the textbooks and other resources.

RS: Okay, thanks. Now we look at PART D

PART D: ROLE OF SUBJECT ADVISORS IN SUPPORTING AND MONITORING THE INTEGRATION OF IKS IN THE IMMEDIATE PHASE SCHOOL CURRICULUM

Q D1- RS: Do you think teachers need support to be able to successfully integrate indigenous knowledge in their teaching?

SA: Yes I think they really do need support now that I'm sensitised to integration.

RS probing: What kind of support do they need?

SA: Well a lot of support as I'm sure they don't know how to integrate. I have never given support on integration anyway. Anyway they'll need to be workshopped, trained, told about indigenous knowledge and its importance to our children, learning and teaching. They will have to be mentored on methods and so on. But this support I can only give if

I'm trained myself and the curriculum is reduced to accommodate indigenous. As I've said the, there is a lot to be covered in the curriculum and the schools are now too much especially after the...what do you call this...yes reconfiguration or restructuring of the Districts from the 23 to the 12. Are you aware of that Sir...now I suddenly have more than enough numbers of schools...235 schools is no child's play and accessing them is a difficulty. Some are deep in rural areas. There are even some of the schools that I have never visited in the 8 months I have been appointed as a Subject Advisor. How than will I be able to support all this schools regularly. It's almost impossible. That is why I do not offer support of this nature. I never considered this...the curriculum is very vast to present more challenges to it. I never give any such support.

Q D2- RS: We will not deal with this question where you rate your support and what you would do to improve your support. Is it okay?

SA: It makes sense. There is really no support to improve as I do not give any support for integration. I have to be equipped, trained, provided with resources first and then I'll give the support and rate myself to identify areas that need improvement.

Q D3- RS: You have already indicated that you need training and you need be taught how to integrate yourself, so we won't deal with this question.

SA: Yes I really do need training on how to implement this now that this interview has made me realise that there is integration to be implemented.

Q D4.1- RS: How do you monitor the teachers to see if they do integrate indigenous knowledge in their lessons? If you do not support, do you monitor at all?

SA: Yes you are dead right. I do not monitor the integration of indigenous knowledge as it has never crossed my mind. My focus looks only at the normal things that I normally monitor like work coverage and problem areas.

Q D4.2- RS: So obviously you don't have any tools that you use for monitoring integration as you don't monitor it?

SA: Yes. I only have tools that I use for general monitoring.

RS: Can I request to see these tools?

SA: Okay, Bawo (*Sir*).

Q D4.3- RS: So you don't have any particular challenges that you experience when you monitor because you don't monitor integration per se?

SA: Yes I don't have such challenges as I do not monitor integration. However, the biggest challenge I would have even if I can try to monitor will be what to monitor and how to monitor it as I don't have the general background and training on integration of indigenous knowledge in teaching.

Q D5- RS: Based on your experience how can the support for and monitoring of teachers be improved to enable teachers to integrate indigenous knowledge successfully?

SA: My experience up to so far tells me that I do not have any experience on support and monitoring integration but to improve a lot I will have to get some thorough training and

support from the Department or District so that I support and monitor teachers appropriately. The teachers themselves will in turn have to be trained through workshops and such like to have a grip on this integration.

RS: Okay, let's proceed to the last section, PART E.

PART E: STRATEGIES THAT CAN BE PUT IN PLACE TO SUPPORT THE INTEGRATION OF IKS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM

Q E1- RS: What would you like to see done by the national and provincial Departments of Education to support the integration of indigenous knowledge in the school curriculum?

SA: Yeah, provide opportunities for training; provide relevant materials and resources for all relevant stakeholders in the schools and Districts. A clear policy guideline should be developed on integration of indigenous knowledge.

RS probing: Why would you need a clear policy guideline?

SA: I see now that the CAPS [Curriculum and Assessment Policy Statements] documents are not clear. That is maybe why I don't know this integration besides lack of training. Or it doesn't deal with integration appropriately. You must understand that I think that there are many teachers like myself who are clueless about this integration which I regard as important now. They will have to be guided as to what content to teach, how to teach it, how to assess it with the other content. These things must be clearly state. Not forgetting, the policy must make sure it also explain the value and importance of indigenous knowledge for the teachers' teaching and for the kids so that they buy into it.



Q E2- RS: What should the District Office do to make sure that the integration of indigenous knowledge in the school curriculum is supported?

SA: There should be a special tool designed to monitor it so that teachers take it seriously. The District should also should roll-out the workshops and train Circuit Managers, Subject Advisors, Principals, HoDs and teachers. This is necessary that everyone must be on par. Schools and us, we should be provided with the necessary resources to do our jobs properly so that proper integration happens.

Q E3- RS: What should be done at school and in the classroom to support the integration of indigenous knowledge in the curriculum?

SA: The schools must support the efforts of the District. They must make time for meetings on progress and to allow Phase teachers to share experiences on integration. The Principals, School Management Teams should support and monitor too. It is important that the stakeholders in the school be involved. If Unions for example do not buy in and the Community is not made aware, then there can be negative attitudes. Phase teachers can form groups to teach maybe as a team across subjects. Learners too must be involved and told and sensitised that their customs they do at home are important also here at school. There should be some advocacy campaigns of some sort.

Appendix C: Sample - Heads of Department FGD transcript

HEADS OF DEPARTMENT FOCUS GROUP DISCUSSION DATASET #1

ABBREVIATED WORDS:-

1. Researcher: (RS)
2. Subject Advisor (SA)
3. Head of Department (HOD)
4. Indigenous Knowledge System (IKS)
5. Questions (Q)

PART A: BACKGROUND INFORMATION

Q A1- RS: What is your gender?

HOD 1: Female

HOD 2: Male

HOD 3: Male

HOD 4: Male

HOD 5: Male



Q A2- RS: How old are you?

HOD 1: 64

HOD 2: 48

HOD 3: 41

HOD 4: 30

HOD 5: 34

Q A3- RS: Which language do you speak most often at home?

HOD 1: English

HOD 2: Afrikaans and English

HOD 3: Afrikaans

HOD 4: English

HOD 5: IsiXhosa

Q A4- RS: What is your highest academic qualification?

HOD 1: Matric

HOD 2: Matric

HOD 3: Matric

HOD 4: Bachelor of Education (B.Ed)

HOD 5: Bachelor of Education (B.Ed)

Q A5- RS: What is your professional qualification?

HOD 1: Higher Primary Education Diploma (HPED)

HOD 2: Higher Diploma in Education (HDE)

HOD 3: Advanced Certificate in Education (ACE)

HOD 4: Bachelor of Education (B. Ed)

HOD 5: Bachelor of Education (B. Ed)

Q A6- RS: Before your current position as HoD, how long have you been a teacher?

HOD 1: 33 years

HOD 2: 20 years

HOD 3: 17 years

HOD 4: 6 years

HOD 5: 4 years

Q A7- RS: How many years have you been HoD?

HOD 1: 8 years

HOD 2: 6 years

HOD 3: 9 years

HOD 4: 4 years

HOD 5: 2 years

Q A8- RS: How do you find your current position as a HOD?

HOD 1: It's very challenging. The department is so demanding; they send you documents today and tomorrow they want them back. There is no timeous sending of circulars and memos. The administration tasks are overly emphasised and we have quite a lot to do administratively.

HOD 2: It's very strenuous.

HOD 3: From my point of view as well I share what Mrs XXX (name deleted) has alluded to now. It's really challenging. We try to maintain from our side the monitoring of staff and facilitating of lessons. We also have to teach. We do find it quite challenging when we are given circulars the day before and we're expected to do that before we complete our job here at the school as a HoD. So those are some of the challenges that we find but I enjoy doing what I do as an HOD. I'm passionate about education and an HOD is a very valuable position within a school structure because as I alluded to you, the monitoring of staff, facilitating of the lesson plans within the school and bringing in new teachers, first year teachers into the career. You've got to guide them, meet with them on a regular basis so it's very strenuous, as Mr XXX (name deleted) but it obviously comes with the position. But added to what Mrs XXX said the external pressures from the department are unnecessary provided that planning can happen earlier and we received the correspondence earlier then we wouldn't have to infringe too much on class time and responsibilities at school whereas we could plan around it and work timeously.



HOD 4: I agree totally with the colleagues. The dissemination of information by the Department is utterly poor making our task as teachers and HoDs very tough. But anyway, the pros outweigh the cons.

HOD 5: Yeah, the demands make us overly busy, and the time-constraints and required administrative demands really make performance of our duties difficult.

PART B: HOW DO TEACHERS INTEGRATE IK

Q B1- RS: In your opinion what does 'indigenous knowledge' mean?

HOD 3: To me it means the knowledge of all the heritage of a people, all the knowledge that is passed from generation to generation orally and through concrete artefacts. It includes the language of a people, their values, their customs, their religion, the way they practice out certain things like their customs and their beliefs. The indigenous language is very important as it carries the culture of the people and it is for communication.

HOD 2: I would add that this is knowledge that is not learnt formally and indigenous knowledge systems are not developed through scientific means which is generally known as modern knowledge. Indigenous knowledge systems may have scientific principles that can be taught but the purpose thereof were not to produce science as we know it but were meant for survival by the community.

HOD 5: I can just add that it is cultural traditional knowledge carried out and learnt through language, the indigenous knowledge languages of people.

RS probing: Anyone want to add something?

HODs: No (*laughter*)

Q B2- RS: What do you understand about 'the integration of indigenous knowledge' in the curriculum?

HOD 1: I would say that it is to link the indigenous knowledge cultural traditional or heritage knowledge of the learners and teachers in the teaching of the subject matter in your lessons. The indigenous knowledge and the scientific knowledge or modern knowledge as one colleague has said is taught together to enrich the lesson or teaching-learning experience of the learners and also to teach values. However, I must admit that I never had any formal training on integration of indigenous knowledge per se; but I have been exposed to integration theories at college. For example if you have a theme on a history topic, you can integrate with the geography where that particular historical event took place.

HOD 4: Yes, even though I too was not formally trained in integration of indigenous knowledge, I understand in terms of knowing general integration you use when teaching. When integrating indigenous knowledge you mix the dominant knowledge in the textbook in your lessons, activities, tasks, projects or assignments with the

underrepresented knowledge of a particular group of people that is not there in the textbook. As a teacher you teach these different knowledges together and separately to make the lesson more interesting and easily understandable for your kids.

HOD 5: Let me add a little point here. Integration of indigenous knowledge should be seen as treating all knowledges equally in the curriculum. By all knowledges I mean knowledge that are from cultures Black or White or Indian or whatever with the purpose of, as my colleagues have said, enriching the learning and teaching. Integration therefore will mean teaching all knowledges together in an integrative fashion and not favouring any or overlooking kind of knowledge.

HOD 3: Yes it is teaching of all heritage traditional and cultural knowledge across all learning areas or subjects. All knowledges must be treated equally in teaching and learning.

HOD 5: Also I can equate integration of indigenous knowledge in the curriculum to stew where you mix many ingredients to make the stew taste nice (*laughter*). Knowledges of different cultures and peoples mixed in the curriculum and teaching to make teaching and learning better; not taught separately.

HOD 3: Yes, 100% correct. Integration is a sort of potjiekos [stew cooked in traditional pot in an open fire] (*more laughter*).

Q B3- RS: Based on your experience what do teachers under your supervision do when they integrate indigenous knowledge in the school curriculum? As well as teachers yourselves what do you do when you integrate?

HOD 3: I don't think they do it consciously or deliberately as I believe they have never had any training on integration of indigenous knowledge in the curriculum before. Myself too as a teacher I don't have formal training but I do integrate the knowledge of learners from their communities with what is being taught. From what I've seen I believe that the teachers do integrate it. They may not be doing it 100% in a correct fashion because of lack of training and so forth but they know that CAPS requires that as teachers we integrate anyway, that we approach our subjects holistically.

RS probing: if they do some integration what do they actually do?

HOD 4: Can I chip in...As teachers among other things we undertake excursions and we give learners some prepared guiding questions to take with. The questions cover historical information of the place, the environment, and the traditional practices of that particular place that they will be visiting. The themes and topics given for activities and research or assignments are also structured around real things in the environment and problems of whatever nature that are found in the community and these include indigenous knowledge of the people in that particular environment and is not subject oriented as such but cut across learning areas or subjects. This is one approach we generally adopt.

HOD 2: It is correct. As a teacher and HoD I encourage integration anyway. Subject integration as it is. Subject integration means that to solve an issue or task or project relevant information from the learning areas or subject can be used. And of course in doing so integration of indigenous knowledge is also integrated. It is a fact that as teachers we use the thematic approach and when we use this, the theme will be done through activities, projects and so forth and it will not be bound to any particular subject

per se even though it will be from a teacher of, let's say, Science and Technology. Teachers can use any knowledge from any subject to tackle the topic or assignment or take home tasks. I ask my learners to involve their parents and grandparents when they are given some home task or activities or any expert knowledgeable on traditional issues for that matter.

HOD 3: Yes it may be that we don't do integration perfectly but we encourage integration in a general sense. The topics, themes, listening activities, discussions, assignments are not given in a vacuum. They involve practices and knowledge that people in the community possesses. Our learners are encouraged to use all resources available and these resources, including people from the community are used to bring responses to the tasks given. We normally approach our subjects as a team, a collective in our schools. That means that we don't operate all alone in our subjects but we share experiences on how to integrate subjects for the benefit of the learners.

HOD 1: I have to emphasise that, with my experience, because of the many changes in the curriculum, we do experience challenges. Remember that some of the things we were never formally taught and what little training we had from Subject Advisors, or whoever from the Department was not enough. Yes, we encourage integration at this level which is the Intermediate Phase. Some topics or themes or areas lend themselves to integration of indigenous knowledge from the learners' communities. We don't focus only on particular subjects but we work in a way that is complimentary of each other's learning areas or subject areas. That is the culture of our school and indigenous knowledge aspects find expression in tasks, discussions, debates, assignments, activities and projects we give our learners.

HOD 3: A lot of integration, even if it is not formalised or maybe not done properly, it does take place because of the requirements of CAPS. We generally encourage integration as some of my colleagues have said. We don't focus only on intellectual development but skills too and values that come from the learners' community local knowledges. We always try to find room for making learning relevant by incorporating the indigenous knowledge of the communities they originate from. But as alluded to before there are challenges. We try to emphasise this indigenous knowledge that has been built from the customs, traditions of a people as opposed to only scientific knowledge and heritage that is mostly found in the textbooks. Whereas you're not only trying to teach learners content but also focusing on skills development, values, customs and all of that because the content they're learning here is mostly modern scientific knowledge, unless it is historic. In indigenous knowledge integration we have to go the extra mile by teaching the values and customs when we handle topics or concepts and themes. They need to grow in this area but it's important that we use that to develop the learner and teacher skills that they need to achieve to integrate properly as per the CAPS requirements. So we do incorporate what we've had, I know from a teaching point of view like in English when you do comprehension, you don't just do a text on an irrelevant thing, rather focus on something within the community. It can be something from a newspaper article about somebody or heritage, whether it's the Steve Biko week, incorporate that into the learning programme especially when you look at social science. We try to find in every learning area ways in which we can incorporate this indigenous knowledge. Even with regards to Maths equations, you can incorporate that. We do push that quite a lot.

HOD 4: Like Mr XXX said, incorporating all of that like taking kids out on excursions so that they can learn more about their background as well or the area where they live in, they learn more about their heritage and, challenges and issues that affect or affected the people in that particular area. I do that a lot and encourage the teachers to do so to integrate.

HOD 1: Adding a bit, the excursions are important because learners learn about different people and their knowledge and heritage and how they did things. Our children use a lot of technology but these do not contain enough indigenous knowledge. That is why I like to give activities, tasks, projects and assignments that will make learners to research a bit on their local ways of doing things. As the saying goes, through these projects that are not subject bound, I take my children back to their roots when I integrate.

HOD 5: The activities like sport for example, I try to teach my learners different values than those that they know and a way of life that is different. When we played another school deeper in the rural areas, I told the children about the way the learners from the other school struggled with far more poor facilities but they did not complain but did their best. My children also commented on this and asked the other learners how they did certain things like fetch water and so on. What I'm saying is that indigenous local knowledge can be used in teaching to go far beyond a particular subject and can teach practical things and also values. It adds to the learners total education experience especially if it is not confined to the formal class activities only. They learn more about other ways of doing things as the integration activities expose them to other cultures

HOD 2: I also want to add that I also teach the grade 4s so in grade four they've got to do their local areas and their local history so we take them to the museum, we show them where they all originate from and the cultural traditional practices of the people then. These things are not contained in the textbooks that unfortunately focus on modern histories and political current affairs. It is through these visits to museums and other places of interest that I integrate indigenous knowledge in my teaching or in the curriculum. I observe my grades 5s when they are exposed to their heritage and local indigenous knowledge through such activities and excursions and tasks they become very interested as they expose them to other things that are not there in the textbooks and they feel proud that their way of living is also valued and appreciated.

RS probing: Are you certain that all teachers integrate regularly? This question is related to **Q B5** further on.

HOD 5: Not necessarily. Not all integrate I think. There are some challenges.

RS probing: Please can anyone elaborate on the challenges.

HOD 4: I just think that maybe our knowledge about integration of indigenous knowledge is not adequate. Even mine as well. This basically due to not there been a clear policy direction from the Department or CAPS on how to do it properly and what knowledge to include as there is a lot of indigenous knowledge in communities as their customs and practices are not the same

HOD 1: Little or no training at all when it comes to integrating it. Everyone do it as one wishes. Teachers have to find out for themselves on how to do it. Policy guidance from the Department is necessary. I reckon it is because there is already curriculum overload and to expand more on the content and the methodology will be difficult for the

government. The Department does not give clear directions as to how to implement indigenous knowledge integration.

HOD 3: There is a lot of curriculum to be covered, and there is no time to focus on integration. One aspect is that due to Apartheid and maybe colonisation teachers do not put much value on indigenous knowledge.

HOD 4: I can go further on time constraints. There is a challenge of the administrative tasks expected from us as teachers and HoDs. Many demands so to say. For example we have to moderate learner evidence of performance provided for each assessment tasks of learners of teachers and our own. I look at subject coverage. I have to mark many subjects. There is little time to visit classes to be able to be able to identify teaching challenges to give the necessary support to teachers. School Based Assessment activities are really demanding as I am involved in pre-moderation, moderation and post moderation processes. These are challenges to me and my fellow teachers. These are demands. Looking at proper integration is very difficult compounded by lack of training.

HOD 5: Whilst we talk about integration not being confined to a subject approach, some teachers are resistant. They regard themselves as experts in their own subjects and do not participate fully in team approach with other teachers. They want to work alone in their subjects and are resistant to share and do things jointly. There is also the issue of lack of indigenous resources and these must be bought out of one's pocket. The Department does not give us resources. The really is no clear direction or standpoint from the Department on integration and indigenous knowledge. We really struggle with resources and source material for indigenous knowledge integration.

HOD 1: I think that the non-involvement of communities in matters of indigenous knowledge is a problem. Teachers use the experts from communities very rarely and they and us as HoDs and teachers do not know much about indigenous knowledge.

HOD 2: These challenges affect the attitude of teachers they display towards anything that is not clear to them. The attitude becomes a negative and to add the parents are not encouraging. They want their children to be taught in English and on modern knowledge because they say that will benefit them in the future and in the job market. I have noticed that some of the teachers share this view. Some parents and teachers believe that some of the values and customs and practices taught in indigenous knowledge are in conflict with their Christian modern values and this creates to a more reluctance to integrate.

RS probing: Now how do you handle these challenges?

HOD 1: The solution is to encourage the teachers and ourselves that they must change and read more from the internet on how to source resources or how to make them.

HOD 3: also we say they must use their training knowledge and theory on how integration occurs in the curriculum generally although this is not specifically for integration of indigenous knowledge, it might be useful.

HOD 5: I like to remind them that themes, projects, tasks for excursions should not be subject focused; that looking at and using the knowledge of other subjects is important when you want to integrate. Another subject may have enough indigenous knowledge to assist the teacher and learner in completing the task or assignment or project.

HOD 4: The only thing to change the attitude is for the Department to play a meaningful role in clarifying how indigenous knowledge should be integrated and give clear positions on the content to be taught and work with all stakeholders in education to resolve issues around integration and the position of indigenous knowledge.

HOD 2: I always tell them that the environment is the best teacher and resource. They must undertake more directed excursions and give tasks that make the learners to research in the community and the environment. They must incorporate outdoor activities with the theoretical teaching in the classroom. As a colleague have said, I also encourage them to read on their own from the internet as there are inadequate resources and training on integration. Unfortunately, they have to pay for some of these activities.

HOD 5: Also as we teach majority Xhosa speakers in our school, it is important that more Xhosa subject teachers who may appreciate their indigenous knowledge are employed so that the attitude changes. Language plays a vital role in indigenous knowledge. I encourage the teachers to now and again code-switch even if they are not Xhosa subject teachers.

Q B4- RS: At what stage of the lesson have you teachers using indigenous knowledge?



HOD 3: From the little time I have visited the classrooms, I have observed that teachers use it during the introduction and throughout the presentation stage of the lesson because the theme taught may have indigenous knowledge as focal point.

HOD 5: But I've also come across instances through class visitations where it's being used as a means of introducing a topic. Like for example in Maths the problems can be developed around a particular concept, indigenous concept where they're forced to add and subtract or whatever so it varies. Some teachers will use it throughout their lesson and some will use it as a means of introduction, others will use it as the main part of the lesson. So it depends on whether they're teaching it as a concept or whether it is used as a tool to help introduce a concept cause learners will grasp knowledge or concepts better if it's related to their scenario. And where better to relate it to their scenario than to bring in the IK and say this is what we are doing within the community as a tradition and use that to try and bring in that Maths concept. And they grasp that rather than try and teach it scientifically and then you lose learners straight away. Most of the times it is not done deliberately or knowingly to integrate indigenous knowledge but the content forces the teacher to integrate.

RS explaining: We have discussed whether you as teachers and other teachers regularly integrate or not. That was in line with **Q B5** and we discussed what you would suggest the teachers do to integrate successfully when we discussed the challenges of integration. That was in line with **Q B6**. Let's discuss question B7.

Q B7- RS: Okay. Fine. Tell us about the teaching methods or strategies you've observed when they integrate? And why do you think they use these strategies?

HOD 1: As teachers we use mostly story telling because the age of learners is suitable for this method. I also do group work as well. Where whatever topic we are focusing on, we break up into groups and we try and solve whatever problem it is. It's not just about me preaching to them about whatever I say; they have to get involved themselves.

HOD 2: Question and answers. Like asking questions specifically about what happens at home and things like that. We also have a period "values" we do values and Mr XXX is actually the value teacher and he also does a lot of storytelling and talking more and practical things outside the classroom.

HOD 3: Just to add in on that as well. What I've experienced is that because it's IK a lot of learners have already been exposed to cultures, the traditions and to that knowledge. So it doesn't only end up being the teacher saying these are the facts this is what you must learn. There's a lot of feedback from the learners. When you look at the teacher learner ratio in the class I think it evens out where the learners are also giving feedback they are also now seeing themselves as sources of information and not just empty vessels gaining information from the teacher. This is a positive of the integration of indigenous knowledge.

HOD 5: Teachers and I included use the telling method often. Learners at times want to know why certain things are done in a particular fashion by the community from where they come from. Or why something happened. As a teacher you now give the answers using the telling method after researching the questions. The telling method is good when you want to give facts from your point of view as a teacher when you integrate indigenous knowledge that you have little knowledge of.

HOD 4: Assignments, projects, activities and discussion method on issues and certain topics are conducted. They investigate certain things for themselves to learn to investigate from their communities and at home where there are better indigenous knowledge experts. This develops critical thinkers and researchers amongst the learners as well. The excursion and tours are also important teaching strategies. Outdoor activities are a must as an approach to integration. And the strategies mentioned here are the strategies I could suggest to any other teacher

Q B8- RS: This question is connected to the issue of textbooks you have alluded to earlier. Would you say that the Learning and Teaching Support Material (LTSM) like textbooks and workbooks contain enough indigenous knowledge content to assist teachers when they integrate?

HOD 1: No not necessarily but it has gotten better. In the past it was all about knowledge of Whites that dominated in the textbooks. For instance in history it was all about the history of settlers and those involved in colonisation. The knowledge was, as I can put it: white, the white this, the white that, the white so forth.

RS probing: Please can you explain more?

HOD 1: It was Jan van Riebeeck this and that and other colonisers' history. We need not deny this. There was little about the history of indigenous people of this country and the history of the indigenous African people is rich. It was not about the Voortrekkers only. Now it is more representative but focus only on contemporary history of the struggle against Apartheid. That is why I say the textbooks do not contain enough knowledge of the indigenous people. Now learners learn about Ghandi, Nelson Mandela, Steve Biko etcetera.

HOD 2: Yes colonisation and Apartheid led to the overlooking of the indigenous knowledges of the peoples of this country. The knowledge was not seen as important and to civilise the society of indigenous people the knowledge of Whites from Europe was regarded as more important that is why it dominates a great chunk of space in the curriculum. It is a bit better now but there must be a lot done to restructure the knowledge in the textbooks that will allow teachers to be comfortable with knowing which indigenous knowledge to teach. But it is a fact that there are very limited resources on indigenous knowledge generally.

HOD 5: True the Department or government must rework the existing knowledge in the textbooks to completely do away with the negative effects of Apartheid and colonisation on the status of indigenous knowledge so that textbooks include more indigenous knowledge for teachers to be innovative when teaching or integrating indigenous knowledge. Teachers cannot be innovative with regard to their strategies if they have little indigenous knowledge to work with in the textbooks and limited resources to boot. They don't know how to do this correctly. Maybe. But I see challenges with regard the rewriting of textbooks and the development of indigenous teaching resources to facilitate integration.



RS probing: What are those challenges?

HOD 3: Sir you know the issue of lack of budget, lack of money. Such an exercise will require a lot of funds and there are many challenges at schools and so on.

HOD 4: We must not forget the issue of an overloaded curriculum. How much indigenous knowledge will be included in the textbooks considering that we have a lot of subject matter to cover as it is? It will be difficult but the government or Department must take an informed and clear position on indigenous knowledge in the curriculum.

PART C: VIEWS OF INTERMEDIATE PHASE SCHOOL TEACHERS ON THE INTEGRATION OF IKS IN THE SCHOOL CURRICULUM

Q C1- RS: Based on your experience would you say that teachers are aware that the new curriculum statements (CAPS) make room for the integration of indigenous in the curriculum? Please motivate your answer.

HOD 4: I think they are reasonably aware of this even though they would not necessary integrate accordingly because of the challenges we have pointed out, challenges like training and attitude towards integration.

HOD 5: We have staff meetings and phase meetings where we talk a lot about integration between learning areas and subjects and themes. And in our planning we do talk about issues of integration. Teachers are expected to be familiar with their CAPS documents.

HOD 2: In our phase meetings, the Foundation Phase will talk about approaching activities, projects, tasks and themes in an integrated manner, so will the Intermediate Phase.

RS probing: For clarity do you ever talk specifically about the integration of indigenous knowledge?

HOD 1: I don't think specifically for integration of indigenous knowledge.

HOD 2: Yes I don't think we specifically talk about integration of indigenous knowledge pointedly. In our grade meetings we do talk about integration of subjects when we teach, that activities and tasks can be approached from a broader perspective than confinement to one singular subject and that teachers must share information which can assist another teacher of another subject to teach a theme or for learners to complete a given tasks. Our integration approach does not specifically speak to integration of indigenous knowledge. I think integration of indigenous knowledge in teaching and learning activities occur automatically as we talk about integration.

RS probing: Why don't you talk about integration of indigenous knowledge?

HOD 3: I really don't know as such besides to say that during these meetings there are other pressing matters to discuss like syllabus coverage and planning of projects and tasks. Maybe I can say it has never crossed my mind to talk specifically about integration.

HOD 5: Honestly, there is a lot to be covered in these meetings which include problems of teachers and learners and other required administration tasks to talk about. Integration of indigenous knowledge I think has never been at the forefront of items discussed in meetings, either phase meetings or grade meetings where we also discuss integration between learning areas or subject areas or grades for that matter. There is a lot demanded from us as teachers and I'll think if something is not emphasised anywhere and nobody from Head Office or the Subject Advisors check on it, then we think carries no significant importance. It is so that teachers maybe ignore it and don't do integration of indigenous knowledge with enthusiasm.

HOD 4: I think we will now take it more seriously and include it in our general discussion of how we can work together as subject teachers and grade teachers when we discuss integration between grades, learning areas or subject areas

HOD 1: Yes I think we were never properly sensitised to the importance of indigenous knowledge in our teaching and in the curriculum and in our training. I think I share the thinking of the younger teachers as I'm rather an old teacher. We just took it for granted that we will integrate when we come across a theme or project that make room for its integration, not planning and preparing for it formally in plans.

HOD 2: You see, Sir, the CAPS policy documents do not spell out very strongly the integration of indigenous knowledge although it is mentioned. I think the importance is not adequately emphasised. There is also the question of how to teach it which is not clearly and explicitly stated and the 'what' part, which is the content...it is not elaborated on. It is not there to be understood easily. We do a 'miss n hit' I assume. Proper training even

proper workshopping by the Department through Subject Advisors has never been conducted.

HOD 4: I think time constraints is a big issue because with the CAPS you need to cover so many assessments during a certain amount of time and you need to submit those marks and you tend to concentrate more on the content than you are concentrating on passing knowledge from the IK or integrating it in your teaching. Do you understand what I'm saying Sir. That is why we don't talk much about indigenous knowledge or its integration. As it was said, there is moderation and so on and other unplanned demands from the department that warrants immediate action. It's too much Sir.

HOD 2: When integrating you'll need to plan, do a lot of planning. You also need to know your CAPS document, what they're asking for and what they want out of it and then plan accordingly. This consumes time and therefore integration is not taken seriously. Where will all the time be to plan properly for integration of indigenous knowledge? Yes we integrate it but not in a properly formalised manner.

RS probing: With all these challenges you mention, do you think that there is space for IK in the curriculum?

HOD 3: Like I said there is room for it. If you go to your planning you can teach a concept in an English lesson that you can cover in Social Science so just because you teach social science doesn't mean you can't cover a concept in another learning area. So just the way the whole CAPS, you know, if you look at your English textbooks the resources, we could cover a lot of IK within that learning area that will not take up a lot of time in another subject. So there are a lot of way in which the department can look at it, you know, in planning the CAPS document in covering language aspects as part of IK and we grow from there. So there are time constraints; that is challenge that we are experiencing. If you want to incorporate all of the IK you need to either provide more time in saying we have to extend school days or we need to take something out to replace it with that so there are different challenges with that cause there's a lot of knowledge but we don't have enough time.

HOD 5: I agree with Mr XXX. As we are discussing here, I can see that everyone think indigenous knowledge has a space. It can mixed accordingly; it can make teaching easier and the learners appear to be enjoying tasks and projects or activities that include knowledge they understand from home, form their experiences in their communities. It is true there is much to be done in the current curriculum setup. The Department must work out means as to how to include more of it and how to avail the resources including training as we have discussed.

HOD 1: I am for the integration of indigenous knowledge as it will enrich the learning experience and also the teaching experience. An adequate space should be created in the curriculum in terms of teaching space and in terms of the physical curriculum, space for more content. indigenous knowledge could be taught side by side with the existing modern textbook knowledge or in an integrative way with the "White" knowledge or separately when there is a need to do so. I believe it should enjoy the same prominence as do other knowledges elsewhere and in the curriculum.

Q C2- RS: Now we come to the attitudes. Is it well received by the teachers?

What attitude would you say is displayed by teachers towards integrating indigenous knowledge in their teaching particularly or in the curriculum generally?

HOD 5: I think a bit negative as it will demand a lot; it will add on the work load which is heavy as we discussed earlier. I think the biggest challenge for a teacher is firstly you need to finish your syllabus for the year. So as a Maths teacher, for e.g., I need to do certain things by the end of term 2 and that puts lots of pressure on me as a teacher. Now here we formalise the integration of indigenous knowledge which will need additional planning, marking, planning of assessments task. No that will influence a great deal our attitude as teachers.

HOD 4: I would not say out and out, negative. But there is certainly reluctance in adding so-called new responsibilities. Sir, I can assure you there is a lot of teaching and admin work, paper work that we as teachers have to complete. It's double so for me as a HoD.

HOD 3: Yes teachers will not be or are not enthusiastic about this integration. There's so little time for you to still do other stuff around which there's so much more that you can do but time is not on your side. There's admin that needs to be done, there's documents that must be filled in and sent back to the department. All that puts so much stress on you as a teacher to finish what you need to do and therefore sometimes you just end up going according to what's in the textbook.

HOD 2: I also just want to add that teachers don't want to do it because they want to finish their work and not because integration of indigenous is bad or indigenous knowledge does not have value or is undermined. Younger teachers can be keener with proper training, resource allocation, reducing of workload and paper work and clear guidelines from the Department. I personally think the attitude between younger teachers and older teachers is very different. Younger teachers understand the importance and value of the indigenous knowledge that has been politically put on the side-lines for quite a long time due to Apartheid and colonisation. Older teachers are more rigid whilst the newer inexperienced ones are more flexible but lack the experience and guidance and training resulting in lack of enthusiasm to integrate.

HOD 4: Further, I think the number of children in class as well also plays a role on the amount of knowledge you can actually pass. Because you can't sit individually with them as well as they are many, that's also a challenge. When will you get the time for individual attention for the learners, and do extra for integration.

RS probing: With all these challenges that affect the attitude of teachers, what can be done to eliminate them so that attitudes change?

HOD 3: Training, training, training. Guidance is necessary, reduction of workload. Sensitising teachers to team-teaching and integration between subjects, learning areas, and provisioning of resources. Yes there should also be space for individual teachers, the specialists who want to do their own thing but these should be planned accordingly. As we discussed earlier, the knowledge in the curriculum and textbooks has to be re-visited and reconstituted to allow for innovation for teachers. Universities must play a vital role in training and the Department too.

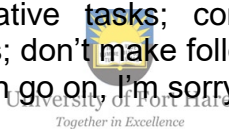
HOD 5: Yes there should be seminars, workshops, meetings of all stakeholders with regards the importance of indigenous knowledge and its importance. But the attitude must change first before integration can occur properly. The training and seminars etc. will be useless if the attitude is negative and the morale is low.

Q C3- RS: There's this challenge about training. You talked about it a lot, now Q C3 is around teacher training. Is training of integration of indigenous knowledge adequate?

HOD 3: It is far inadequate. It's almost not there. We need workshops and other professional development training.

HOD 2: I don't think there's enough training because things are changing all the time and who does the training? The Subject Advisors don't conduct proper training or workshops or whatever. Training is minimal and it is not on indigenous knowledge. The training needs to be in-house, the department doesn't train us so it has to be in-house, there's no one else so it has to be the HODs and the Principal. We try as much as we can but there isn't enough training as far as I'm concerned.

HOD 1: I agree, the Principal and the School Management Team should be trained by government appointed people or experts and in turn they should train the teachers. The Subject Advisors seem to be lost most of the time and they themselves need training. I'm not bad-mouthing them but I'm talking a fact. They don't bring much to the plate. They concentrate mostly on administrative tasks; completion of syllabus; moderation; examinations; they don't go to class; don't make follow-ups; don't focus on teaching and learning and curriculum needs. I can go on, I'm sorry.



RS probing: Any other take? Are you agreeable?

HOD 5: Yes, a 150%. I mean you come in raw basically from university having little experience let alone on integration and the HODs, the principal, you have to feed off them to get you going off the ground and the Subject Advisor is nowhere to be seen.

RS: So we agree that the training it's not adequate or is very limited?

HODS: Yes.

PART D: ROLE OF HODS IN SUPPORTING AND MONITORING THE INTEGRATION OF IKS IN THE IMMEDIATE PHASE SCHOOL CURRICULUM

Q D1- RS: Do you think teachers need support in integration?

HODS: Yes.

RS probing: What kind of support?

HOD 2: The support on teaching approaches or strategies on how to integrate must be provided in grade meetings and phase meetings. Workshops on assessment strategies must be provided too.

HOD 1: And as a grade, you sit down together and you suss out all the things that you need to do as well. Cooperatively work strategies for teaching integration challenges, as it were. So that also helps in identifying where the teachers need advice and guidance on strategies. And class visitations will be of assistance, as a HoD you must go to the class and visit and make sure that all the things that must be covered are covered. As admitted, I don't do this much. I don't know of others. Teachers need to be assisted. As we have said they don't have much experience in integrating, generally, as they are used to a subject approach, one person for herself or himself. It is far worse when it comes to integration.

HOD 4: Teachers need training full stop. They need seminars; they need well planned workshops on integration and indigenous knowledge. They need to be directed as to how to approach integration and advise on the content. We also need training to be able to give proper support.

HOD 2: And we also try and source external advice from professionals but then again that costs money and we don't have the money to pay for these people to come and talk to them or do training unless we gather all the schools together which we often do. But sourcing of an expert or specialist on these issues like integration is a costly affair. As leader teacher it is necessary to get all the schools in the community to come together and get one speaker to come and give us a little bit of advice.

HOD 3: Another thing that works is mentoring. Somebody that is doing well with integration with IK and the implementation of IKS can mentor and work with those that are struggling with it. Even if it's a teacher sitting with their peer, and avoid the silo mentality, teaching in isolation. Peer mentoring and sharing of skills is what the teachers need. We too as HoDs. Teachers need peer assistance by people who have experience in integration generally who can show them how to transfer integration theory into practice by implementing it in the integration of indigenous knowledge. As discussed teachers need to team-teach, to share in a forum of different subject specialist in the schools and not do things all alone in little corners.

HOD 5: And teachers need to be supported and assisted with the planning and preparation of lessons, tasks, assessment, projects, activities that involve indigenous knowledge. they need to be assisted with their attitude to indigenous knowledge.

RS probing: So what you are saying is you do support your teachers with integration?

HOD 3: Generally we support and monitor but not specifically for integration of IK.

Q D2- RS: Just rate the support you give to teachers when they integrate. Do you do it frequently, regularly?

HOD 3: I don't do it frequently for integration of indigenous knowledge for reasons we have discussed like the competing demands that are expected from me as a HoD.

HoD 5: I agree. It's very rare that I support a teacher for integration of indigenous knowledge activities. As discussed we don't look deliberately and formally at integration of indigenous knowledge.

HOD 1: I need to work on my support for teachers on integration of indigenous knowledge; it has never been in mind to do it. I may be wrong, but I think I speak for my colleagues when I say; the support we give is really inadequate to be honest.

HOD 5: Yeah, I think we can do more.

Q D3- RS: What challenges do you experience when you support and monitor the teachers during an integration of indigenous knowledge lesson?

HOD 1: The lack of time do it; the lack of resources; too much expected from me as we have shared; no training on supporting and monitoring of indigenous knowledge; no proper understanding of indigenous knowledge and how to implement integration; the lack of enthusiasm from teachers and myself on occasion. This is an attitudinal block. Lack of resources to support properly.

HOD 5: I think Mrs XXX has summed up our challenges.

HODs: We agree.

HOD 3: Time constraints. You've got your own classes that you need to teach and you also need to follow up with other teachers as well that are under you that you need to guide and so on. Like I said earlier on, there's so many things that you need to cover. You need to cover all important bases before anything else. And unfortunately, integration would seem to be an extra something at this point. It can't compete with the marking, the moderation, the countless paper work needed until the Department itself elevates it to status of importance.



Q D4- RS: You appear to be saying you need support yourself with regards the integration of indigenous knowledge in the curriculum. What kind of support is this?

HOD 3: We need what I call 'up skilling'. In simple terms we need proper training ourselves to improve. We need to be resourced. It is important that we are given proper resources that we first use in properly arranged workshops. We need guidance and advise. We need to be trained IK assessment issues and IKS in general.

HOD 1: The Subject Advisors must be trained too so that they are able to guide, mentor, advise, train and conduct proper and professional adequate workshops.

HOD 4: That's true. For instance if we do go to departmental workshops, which is just theory all the time, the Subject Advisors will never come up with a more practical demonstration of how to conduct integration or anything for that matter, you know. They come and put on their laptops and read from there, for me that's not a workshop rather give me the notes and I will sit and go through it myself and see how I can implement them.

HOD 2: The Department must support and assist us. As already mentioned, they give us workshops, we go to these workshops they talk all the time and they're not realistic, they don't know that we're sitting with classes of 36 children and more. They don't think of that and they don't think of we also have discipline problems. It's all beautiful on their screens on their laptops but when it comes to the practical side of it, it doesn't work. The theory on their laptops does not work if it is not demonstrated in an authentic classroom set-up.

HOD 1: Subject Advisors must visit our classrooms and see what we have to cope with and what our teaching needs are instead of focusing on administrative work all the time or theoretically talking about our challenges in the classrooms instead of demonstrating how things should be done. I reckon they need training themselves as I've mentioned.

Q D5- RS: In relation to supporting the teacher. How do you monitor with regards to the integration of indigenous knowledge in the classroom? Do you have any tools that you use to monitor your teachers?

HOD 2: I have, during the far-in-between class visitations, checked their books and I moderate their files, test papers, exam papers, all those things so that we can see they're on the right track.

RS probing: Are these aspects you monitor related to the integration of indigenous knowledge in the tasks and lessons and assessment? Anyone?

HOD 2: Not necessary but are done generally to check whether the teachers are on track with syllabus coverage and doing activities according to prescribed ways.

HOD 4: I do not check necessary for integration of indigenous knowledge but the lessons will show when there were elements of indigenous knowledge. As somebody said, it is a hit n miss affair with integration to be honest.

HOD 5: We have rubrics we use as tools and we adhere to them and they help with monitoring integration to a degree.

HOD 3: The IQMS score sheets and the book we move around with as HoDs in the classes to check what they're covering, their content and any behavioural problems and so we are constantly in and out monitoring the classes and we complete a book every week. And we have weekly meetings. But I'm not sure whether they speak to integration too. I don't think so.

HOD 1: To be honest we may be needing a proper inclusive indigenous knowledge monitoring tool that the Department should develop if they are serious about integration.

Q D6- RS: Okay. According to your experience what needs to be done to assist teachers with integration of indigenous knowledge?

HOD 4: Less admin, paper work from the Department.

HOD 3: More teaching time. As in concentrated teaching time. This is the time allocated for you to cover the content.

HOD 2: Also maybe there should be an incentive. If teachers have undergone some training and demonstrate their competence in integration they should be awarded with achievement certificates to boost their morale and change their attitudes. Teachers should be trained to approach things not in an individual subject manner approach as they are prone doing, but should also have an integrative approach to learn from each other

HOD 3: Another thing, our learner teacher ratio should be reduced. The smaller learner classes will ensure that the learners themselves grasp indigenous knowledge concepts and tasks and will give the teachers more confidence in integration.

HOD 1: Training. Seminars. Workshops. Universities should be roped in to assist with the training of new teachers and should offer certificate courses for qualified teachers. The universities must seriously check their academic curricula and professional methodology courses whether they are indigenous knowledge friendly; that is, whether they accommodate indigenous knowledge methods. Teachers should be assisted by experts from the community and other stakeholders like traditional leadership that are perceived to be custodians of indigenous knowledge.

PART E: STRATEGIES THAT CAN BE PUT IN PLACE TO SUPPORT THE INTEGRATION OF IKS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM

Q E1- RS: As HoD what would like to see both the national and provincial Departments doing to support the integration of indigenous knowledge in the school curriculum?

HOD 3: Well like Mr XXX said, they should work together. That is a big one because we often find that National will say something or have certain documents drawn up and then the Province will interpret it slightly differently and disseminate the information late. So then you're getting asked two different things. So they're not necessarily talking the same language when they present things. Whereas when you go to National they wanting it done this way, you go to Province they're wanting you to deviate and do it this other way. National and Provincial must disseminate the same curriculum policy that speaks to what should be done to implement integration of indigenous knowledge; that is, how should integration be done. All stakeholders must be consulted and this must include experts in the community and traditional authorities like traditional leadership. They should advise what content to include. The seminars, workshops and professional development activities must be pitched at a level that is understandable to the teachers and other interested stakeholders. Appropriate resources like textbooks must be availed to schools.

HOD 2: Also if National can provide us with the same resources as other provinces. Because if you take the Eastern Cape (EC) and the Western Cape (WC), it feels like you're in two different countries.

Q E2- RS: What strategies should the District implement to ensure the integration of indigenous knowledge?

HOD 4: The District should also facilitate the training of teachers, Principals, the School Management Team on integration. Appropriate resources like teaching aids should also be developed and made available to schools. It is high time, as said before, that the Province universities should sit with the Provincial office and Districts and work out how teachers should be trained and award certificates to teachers who have completed courses or programmes in integration. I will emphasise that as teachers and HoDs we must be empowered but the Subject Advisors need also to be skilled and to be trained to support and monitor integration effectively.

HOD 5: I think on a district level as well, like they used to have it in the old days, should have inspectors. The Subject Advisors must visit schools regularly and assist with curriculum issues like teaching. They must not focus on paper work and administrative duties. Maybe more qualified and competent Subject Advisors must be employed to benefit teachers and the learners ultimately.

HOD 1: Subject Advisors must be competent enough to give demonstration lessons and guide and advise professionally. Training is absolutely necessary for them like it is for us as teachers.

HOD 3: I want to emphasise that more infrastructure should be planned for by the Department. As teachers we sit with huge numbers and some of the schools do not have enough classrooms and things like desks. Teaching of new approaches like integration should be accompanied by adequate and proper resources so that proper individual attention is given and for a conducive teaching-learning space to be created. Not to forget, teachers must be taught how to assess integration or projects and task with indigenous knowledge component.

HOD 1: Please do not forget the monitoring and support tools that cater for integration. We must all be equipped with the tools even the Subject Advisors. I have never seen a Subject Advisor using an indigenous knowledge sensitive tool when coming to visit school.

HOD 5: Subject Advisors must be able to come back and check on implementation, give feedback.

Q E3- RS: What should be done in the school and in the classroom to support integration of indigenous knowledge?



HOD 1: The schools should coordinate and arrange cultural days maybe once per term for the learners and teachers that are connected to themes and areas in the syllabus. These will cater for the cultural potjiekos pot we spoke about. Community stakeholders should be involved.

HOD 2: Attitudes of teachers should be worked at through phase meetings and grade meetings and through advocacy campaigns. There are teachers and parents who are not for indigenous knowledge as we said as they believe it is not beneficial and that it will be waste of time and that the values it reflects are not the same or are conflict with those of Western modern cultures.

HOD 5: Also such grade and phase meetings will make sure that learning areas or themes or topics are not treated in an individualistic manner. School should support teachers in obtaining IK resources. Classes should have resources that speak to indigenous knowledge topics and themes reflected in the textbooks. The school should make time for the up skilling of teachers and should involve relevant community stakeholders knowledgeable in indigenous knowledge systems to serve as cultural advisor or a project advisor. We should really get the parents or community involved. Communities are very important stakeholder to the school, it's extremely important. Business people, doctors, traditional leaders must be used to empower learners on things traditional and cultural.

END OF DISCUSSION

Appendix D: Instrument 1 – Self-administered questionnaire

Title of the Study

Integration of indigenous knowledge in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa

TEACHER QUESTIONNAIRE

INSTRUMENT 1

INTRODUCTION

1. Purpose of this questionnaire:

The **main aim** of the study is to investigate how indigenous knowledge is integrated in the Intermediate Phase school curriculum. This questionnaire focuses on issues that have to do with the integration of indigenous knowledge in the Intermediate Curriculum school curriculum. Your responses will provide information on the issues and will lead to deeper understanding on classroom processes and practices that occur during integration.

2. Anonymity and Confidentiality:

In administering this questionnaire, I am bound to conform to the ethical considerations of research. Information gathered here about you **will not** be shared with others for purposes other than research. I consider sharing of information about you as unethical. Therefore, your name, the information about you as an individual, and the name of the school you teach at will be kept confidential.

To ensure that you remain anonymous, I will not record your name, the name of your District, the name of your Circuit Management Centre, or the name of your school anywhere on the questionnaire to make sure that no one links you to the answers you give. I only will have access to the information. The information will remain confidential and there will be no “comebacks” from the answers you give. You therefore will not be prejudiced in any way by the responses you give. A strict level of confidentiality will be adhered to. **Therefore, I ask you to be as open and honest as you possibly can.**

Please, it should be made clear that you are not forced to take part in this survey. Kindly note that the choice whether you participate or not rests entirely on you. However, I will really appreciate it if you could share your thoughts with me. Should you choose not to answer questions on the questionnaire, you will not be penalised or affected in any way.

Also, understand that even if you agree to complete the questionnaire, you also have the right to indicate any time to me that you do not want to continue with completing the questionnaire anymore. You will be excused and you will suffer no penalties at all.

3. I will collect the questionnaire personally at school or anywhere we mutually agree on.

4. Feel free to contact me at the following: cells 082 867 6606/071 55 678 50; fax 086 547 0899; e-mail nkosinathimkosi@gmail.com

PART A- YOUR BACKGROUND

For each of the following questions, make a mark (X or √) in only one box for the answer.

A1	What is your gender? 1= Male 2= Female	<input type="checkbox"/> 1 <input type="checkbox"/> 2
A2	To which population group do you belong? 1= Black African 2= Coloured 3= Indian or Asian 4= White	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
A3	Which language do you speak most often at home? 1= Afrikaans 2= English 3= IsiXhosa 4= IsiZulu	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
A4	To which qualification category do you belong? 1= No Matric, No training 2= Matric with no training/ REQV10 3= Standard 6,7,8,9 + 2years training/ REQV11 4= Matric + 1 or 2 years training/ REQV12 5= Matric + 3 years training / REQV13 6= Matric + 4 years training / REQV14 7= Matric + 5 years training / REQV15 8= Matric + 6 years training/ REQV16	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8
A5	To which religious group do you belong? 1= Christian 2= Muslim 3= Hindu 4= Jewish 5= Indigenous religion 6= None of the above	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6
A6	How long have you been teaching? 1= Less than 1 year 2= 1 – 5 years 3= 6 – 10 years 4= More than 10 years	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
A7	At what type of school are you teaching? 1= Primary school 2= Combined school	<input type="checkbox"/> 1 <input type="checkbox"/> 2
A8	What grade do you teach? 1= Grade 4	<input type="checkbox"/> 1

2= Grade 5	<input type="checkbox"/>	2
3= Grade 6	<input type="checkbox"/>	3
4= Two grades of the above	<input type="checkbox"/>	4
5= All of the Grades	<input type="checkbox"/>	5

Instructions: Please answer the following questions as honestly and as fully as you can. There is no right or wrong answers to any of the questions. Please carefully read all questions and write your answers in the spaces provided. Use examples to explain/ defend each of your answers where required or necessary.

PART B: HOW TEACHERS INTEGRATE INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM

Question B1



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What subject/s do you teach?

1.	2.	3.	4.
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Question B2

Are you aware that the new curriculum (Curriculum and Assessment Policy Statements-CAPS) allows for integrating indigenous knowledge in the curriculum? YES 1 2

Question B3

What is your understanding of 'integration of indigenous knowledge in the school curriculum'?

Question B4

Indigenous knowledge integration in the Intermediate Phase school curriculum

Do you integrate 'indigenous' knowledge in your teaching? YES 1 NO 2

Question B5

How do you integrate 'indigenous knowledge' in your subject in the classroom?

Question B6

How frequent do you integrate indigenous knowledge in your lessons?

- 1=Once a week
- 2=Everyday
- 3= Once per quarter
- 4= Once per month
- 5=Never



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Question B7

Which of the following 9 teaching strategies best describe **your teaching strategy** when you integrate 'indigenous knowledge' in your lessons? Please put a mark (X) where relevant.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	You organise your lessons without considering other subjects	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2	You share your lessons material and plans with other teachers.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3	You consult formally or informally with other teachers about your teaching or lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4	You draw from other subjects' relevant content that will enhance your lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5	You arrange with other teachers of other learning areas to teach on the same day topics related to your topic of the lesson.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
6	You plan your lessons jointly with another teacher whose learning area is related to your learning area.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Indigenous knowledge integration in the Intermediate Phase school curriculum

7	You teach some common topics of different learning areas as a team.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
8	Your school make time in the timetable to teach themes or topics that are common in different subjects/learning areas.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
9	You encourage your learners to always try to make a connection between indigenous knowledge and what is being taught in your subject and other subjects.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Question B8

How can teachers be assisted to successfully integrate 'indigenous knowledge' in their subjects?

Question B9

The 5-point rating scale shows the frequency of actions taking place during your lesson. It is not a judgment of the quality of these actions. The meanings of the numbers are:



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- 1 – Not at all
- 2 – Occasionally
- 3 – Some of the time
- 4 – A lot of the time
- 5 – Frequently

You:	Ratings (Circle)
B9.1 Create a space for local indigenous knowledge when you prepare your lessons	1 2 3 4 5
B9.2 Use indigenous knowledge to introduce the lesson topic	1 2 3 4 5
B9.3 Create a space to facilitate integration of indigenous knowledge during the lesson	1 2 3 4 5
B9.4 Allow learners to use indigenous knowledge of their local communities in classroom tasks	1 2 3 4 5
B9.5 Use teaching aids with indigenous knowledge content	1 2 3 4 5
B9.6 Use indigenous knowledge only during the conclusion phase	1 2 3 4 5
	1 2 3 4 5

B9.7 Incorporate indigenous knowledge in your learner assessment activities	1 2 3 4 5
B9.8 Teach indigenous knowledge content separately from the lesson content	1 2 3 4 5
B9.9 Find it difficult to integrate indigenous knowledge in your lessons	1 2 3 4 5
B9.10 You only talk about indigenous knowledge but never use it in your lessons	1 2 3 4 5

PART C: VIEWS OF TEACHERS ON THE INTEGRATION OF IK IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM

Question C1

What does 'indigenous knowledge' mean to you?



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Question C2

Do you think integrating 'indigenous knowledge' in your lessons would benefit your teaching?

1 YES 2 NO 3 UNSURE 4 DO NOT KNOW

Please explain your answer.

Question C3

Do you think **your learners** would benefit from your teaching when you integrate indigenous knowledge in your lessons? YES NO

Please motivate your answer.

--

Question C4

Please indicate how strongly you agree or disagree with the following statement. Please put a mark (X) where appropriate.

	1	2	3	4	5
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
C4.1 Integration of indigenous knowledge in the curriculum will benefit my teaching.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C4.2 Integration of indigenous knowledge will benefit my learners.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C4.3 I do not integrate indigenous knowledge because I did not get training to do so.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C4. 4 I do not integrate indigenous knowledge because I do not see its value in teaching and learning.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>



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Question C5

What kind of training did you receive in integrating 'indigenous knowledge' in the curriculum or in your teaching? Please put a mark (X) where applicable.

- Informal training
- Formal training
- Never received any training
- In-service training
- Taught myself
- Other ways (Please explain)

Question C6

Please indicate how strongly you agree or disagree with the following statement. Put a mark (X) in the box to show your choice.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
C6.1	Including indigenous knowledge in my lessons makes/will make my teaching better.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.2	Including indigenous knowledge in my lessons benefit/will benefit my learners.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.3	Including indigenous knowledge in my lesson makes/will make my lessons more understandable to my learners	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.4	My learners enjoy/will enjoy my lessons more when I integrate indigenous knowledge.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C6.5	Using teaching-learning materials with indigenous knowledge content enriches/will enrich my lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Question C7

The new curriculum (CAPS) states that indigenous knowledge should be included in the curriculum. Is it possible to adhere to this statement? YES NO

Are there any challenges you foresee that would make integration difficult? Please explain.

PART D: SUPPORT AND MONITORING OF INTEGRATION OF INDIGENOUS KNOWLEDGE BY SUBJECT ADVISORS AND HoDs

Question D1

Indigenous knowledge integration in the Intermediate Phase school curriculum

D1.1	Do you need support to be able to integrate 'indigenous knowledge' in your lessons?	YES <input type="checkbox"/>
		NO <input type="checkbox"/>
D1.2	Do you get the support you need?	YES <input type="checkbox"/>
		NO <input type="checkbox"/>
D1.3	If yes, is the support you get adequate?	YES <input type="checkbox"/>
		NO <input type="checkbox"/>

Question D2

How would you like to be supported when you integrate or want to integrate 'indigenous knowledge' in your subject?

Question D3

Please indicate how strongly you agree or disagree with the following statement. Put a mark (X) in the box to show your choice.



		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
D3.1	My subject HoD is knowledgeable about integrating indigenous knowledge and supports me with my integrating lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D3.2	Although my subject HoD is not knowledgeable about integrating indigenous knowledge, s/he supports me anyway with my integrating lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D3.3	My subject HoD monitors my lessons when integrating indigenous knowledge.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Question D4

Please put mark (X) in the box next to the word that would best describe the frequency of the support you get from your subject HoD.

Indigenous knowledge integration in the Intermediate Phase school curriculum

<p>D4.1 How frequent does your subject HoD support you with your lessons when you integrate indigenous knowledge?</p>	<p>Regularly <input type="checkbox"/></p> <p>Sometimes <input type="checkbox"/></p> <p>Seldom <input type="checkbox"/></p> <p>Never <input type="checkbox"/></p> <p>Once in a while <input type="checkbox"/></p>
---	--

Question D5

Please indicate how strongly you agree or disagree with the following statement. Put a mark (X) in the box to show your choice.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
D5.1	The Subject Advisor <i>is knowledgeable</i> about integrating 'indigenous knowledge' and <i>advises</i> me on how to integrate.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.2	Although the Subject Advisor is not knowledgeable about integrating indigenous knowledge, she/he supports me anyway with my integrating lessons.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.3	The Subject Advisor does not support me.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.4	The Subject Advisor monitors my lessons when integrating indigenous knowledge.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D5.5	The Subject Advisor does not monitor my integrating lessons at all.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Question D6

How would you like the Subject Advisor to assist you when you integrate 'indigenous knowledge'?

Question D7

In your opinion, does the Learning and Teaching Support Material like textbooks and workbooks contain enough indigenous knowledge-content that assist you when you integrate indigenous knowledge during your lesson?

Please motivate your answer:

PART E: STRATEGIES TO SUPPORT INTEGRATION OF IK IN THE INTERMEDIATE SCHOOL CURRICULUM

Question E1

What would you like to see the **national and provincial Departments of Education** do to support the integration of indigenous knowledge in the school curriculum?


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Question E2

What would you like to see the **District Office** do to support the integration of indigenous knowledge in the school curriculum?

Question E3

What **particular strategies** would you like to see **put in place at school and class levels** to support integration of indigenous knowledge in the curriculum? Why?

Appendix E: Instrument 2 - Focus Group Discussion guide for Heads of Department

Title of the Study

Integration of indigenous knowledge in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa

FOCUS GROUP DISCUSSION INTERVIEW SCHEDULE

INSTRUMENT 2

HEADs of DEPARTMENT (HoDs)

INTRODUCTION

5. Purpose of the interview:

The **main aim** of the study is to investigate how indigenous knowledge is integrated in the Intermediate Phase school curriculum. The **specific objective** of this discussion is to explore the role played by subject HoDs in supporting and monitoring the integration of indigenous knowledge in the Intermediate Phase school curriculum. This subsumed objective is to gain a deeper understanding of how the HoDs go about in ensuring that indigenous knowledge is integrated by teachers when they integrate indigenous in their teaching.

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6. Guaranteed Anonymity and Confidentiality:

In conducting this interview, I am bound to conform to the ethical considerations of research. Information gathered here about you will **not** be shared with others for purposes other than research. I consider sharing of information about you as unethical. Therefore, your name, the information about you as an individual and the name of the school you teach at will be kept confidential.

To ensure that you remain anonymous, I will not record your name, the name of your District, the name of your Circuit Management Centre, or the name of your school anywhere on the questionnaire to make sure that no one links you to the answers you give. I only will have access to the information. The information will remain confidential and there will be no “comebacks” from the answers you give. You therefore will not be prejudiced in any way by the responses you give. A strict level of confidentiality will be adhered to. **Therefore, I ask you to be as open and honest as you possibly can.**

It should be made clear that you are not forced to take part in this interview. Kindly note that the choice whether you participate or not rests entirely on you. However, I will really appreciate it if you could share your thoughts with me. Should you choose not to answer questions, you will not be penalised or affected in any way.

Please understand that even if you agree to participate, you also have the right to stop at any time and indicate to me that you do not want to continue with the interview anymore. You will be excused and you will not be prejudiced in any way.

7. Permission to Tape:

Please, I kindly request your permission to record this interview session. I need to transcribe the information from this session for analysis purposes as part of this research process. Also, I need to listen to our discussion after this session. If anyone has any objection, please indicate so.

8. Initiating the Discussion

Thank you for agreeing to participate in this discussion. As I have explained, I am interested in establishing how teachers integrate indigenous knowledge in the curriculum, and by implication, in their respective subjects as well as establishing how you support and monitor the teachers when they integrate indigenous knowledge. I shall now begin with the first question. I'll be taking notes whilst you are talking, but I'll also record the interview.

PART A: YOUR BACKGROUND



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Question A1

What is your gender? FEMALE MALE

Question A2

How old are you?

Question A3

Which language do you speak most often at home?

Question A4

What is your **highest academic** qualification? (e.g. B.Sc; B.Ed; Masters etc)

Question A5

What is your **professional** qualification? (STD; SPTD; HeD; PGCE etc)

Question A6

Before your current position as HoD, how long have you been a teacher?

Question A7

How many years have you been in your current position?

--

Question A8

How do you find your current position? (**Probe:** Why?)

PART B: HOW DO TEACHERS INTEGRATE IKS IN THE SCHOOL CURRICULUM?

Question B1

In your opinion, what does 'indigenous knowledge' mean?



Question B2

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What do you understand about 'the integration of indigenous knowledge in the school curriculum'?

Question B3

Based on your experience, what do teachers under your supervision do when they integrate indigenous knowledge in their teaching? (**Probe:** Do they integrate at all? Do they have challenges? Why do you think they have these challenges? How do you handle the challenges?)

Question B2

At what stage, during their lessons, do teachers mostly use indigenous knowledge? (**Probe:** Why do you think they use indigenous knowledge in this phase of the lesson?)

Question B3

Indigenous knowledge integration in the Intermediate Phase school curriculum

Would you say the teachers under your supervision regularly integrate indigenous knowledge in their lessons? (**Probe:** Please could you explain your response?).

Question B4

What would you suggest what teachers should do to successfully integrate indigenous knowledge in their teaching? (**Probe:** Why?)

Question B5

Are there any particular teaching methods/startegies or approaches that are used by teachers when they integrate? (**Probe:** Why do you think they prefer these particular teaching methods?)

Question B6



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Would you say that the Learning and Teaching Support Materials (LTSM) like textbooks and workbooks contain enough indigenous knowledge content to assist teachers when they integrate? (Probe: If not, why do you think are the reasons for the LTSM not to have enough indigenous knowledge? If yes, why do you say so?)

PART C: WHAT ARE THE VIEWS OF INTERMEDIATE PHASE SCHOOL TEACHERS ON THE INTEGRATION OF IKS IN THE SCHOOL CURRICULUM?

Question C1

Based on your experience, would you say that teachers are aware that the new curriculum policy statements (CAPS) make room for the integration of indigenous knowledge in the curriculum? Please motivate your answer.

Question C2

In your opinion what would you say is the attitude of teachers towards integration of indigenous knowledge in their teaching or in the curriculum generally? (**Probe:** What are their views on indigenous knowledge and its integration in the curriculum? How do they show or express their attitude? Why this attitude do you think?)

Question C3

Is the level of teacher training in the integration of indigenous knowledge adequate? (**Probe:** Why do you say so?)

PART D: WHAT ROLE DO HoDs PLAY IN SUPPORTING AND MONITORING THE INTEGRATION OF IKS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM?



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Question D1

Do you think teachers need **support** in integrating indigenous knowledge in their teaching? (**Probe:** Why? What kind of support do they need? Are **you** able to give them this support?)

Question D2

How would you rate the support you give to teachers when they integrate? (Probe: Is it adequate? Does it need improvement? What would you suggest to make your support even better?)

Question D3

What challenges do **you** experience when you **support and monitor** the teachers during integration in their lessons? (**Probe:** Why? How do you resolve the challenges?)

Question D4

What kind of support do **you yourself** need with regards to integrating indigenous knowledge in the curriculum? (**Probe and prompt:** Do you need training? What kind of training? What about tools of trade?)

Question D5

D5.1 How do you **monitor** the teachers to see if they do integrate indigenous in their lessons?

D5.2 What tools do you use to monitor? (**Probe:** How do you use them? Why? Are the tools helpful?)



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Question D6

Based on your experience when monitoring, what can you say should be done to assist teachers to integrate indigenous knowledge more in their teaching? Why?

PART E: WHAT STRATEGIES CAN BE PUT IN PLACE TO SUPPORT THE INTEGRATION OF IKS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM?

Question E1

What would you like to see both the **national and provincial Departments of Education** doing to support the integration of indigenous knowledge in the school curriculum?

Question E2

Indigenous knowledge integration in the Intermediate Phase school curriculum

What would you like to see the **District Office doing** to ensure that the integration of indigenous knowledge is successfully done at schools? (Probe: Why?)

Question E3

What should be done at **school and in the classroom** to support the integration of indigenous knowledge in the curriculum? (Probe: Why?)

Thank you for your time, effort and contribution to this interview.



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Appendix F: Instrument 3 – Semi structured interview schedule for Subject Advisors

Title of the Study

Integration of indigenous knowledge systems in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa

SUBJECT ADVISOR INTERVIEW SCHEDULE

INSTRUMENT 3

INTRODUCTION

9. Purpose of the interview:

The **main aim** of the study is to investigate how indigenous knowledge is integrated in the Intermediate Phase school curriculum. The **specific objective** of this discussion is to explore the role played by Subject Advisors in supporting and monitoring the integration of indigenous knowledge in the Intermediate Phase school curriculum. This subsumed objective is to gain a deeper understanding of how the Subject Advisors go about in ensuring that indigenous knowledge is integrated by teachers when they integrate indigenous in their teaching.

10. Guaranteed Anonymity and Confidentiality:

In conducting this interview, I am bound to conform to the ethical considerations of research. Information gathered here about you will **not** be shared with others for purposes other than research. I consider sharing of information about you as unethical. Therefore, your name, the information about you as an individual and the name of the school you teach at will be kept confidential.

To ensure that you remain anonymous, I will not record your name, the name of your District, the name of your Circuit Management Centre, or the name of your school anywhere on the questionnaire to make sure that no one links you to the answers you give. I only will have access to the information. The information will remain confidential and there will be no “comebacks” from the answers you give. You therefore will not be prejudiced in any way by the responses you give. A strict level of confidentiality will be adhered to. **Therefore, I ask you to be as open and honest as you possibly can.**

It should be made clear that you are not forced to take part in this interview. Kindly note that the choice whether you participate or not rests entirely on you. However, I will really appreciate it if you could share your thoughts with me. Should you choose not to answer questions, you will not be penalised or affected in any way.

Please understand that even if you agree to participate, you also have the right to stop at any time and indicate to me that you do not want to continue with the interview anymore. You will be excused and you will not be prejudiced in any way.

11. Permission to Tape:

Please, I kindly request your permission to record this interview session. I need to transcribe the information from this session for analysis purposes as part of this research process. Also, I need to listen to our discussion after this session. If anyone has any objection, please indicate so.

12. Initiating the Discussion

Thank you for agreeing to participate in this discussion. As I have explained, I am interested in establishing how teachers integrate indigenous knowledge in the curriculum and by implication in their respective subjects as well as establishing how you support and monitor the teachers when they integrate indigenous knowledge. I shall now begin with the first question. I'll be taking notes whilst you are talking, but I'll also record the interview.

PART A: YOUR BACKGROUND

Question A1

What is your gender? FEMALE MALE



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Question A2

How old are you?

Question A3

Which language do you speak most often at home?

Question A4

What is your **highest academic** qualification? (e.g. B.Sc; B.Ed; Masters etc)

Question A5

What is your **professional** qualification? (STD; SPTD; HeD; PGCE etc)

Question A6

Before your current position as Subject Advisor, how long have you been a teacher?

Question A7

How many years have you been in your current position?

--

Question A8

How do you find your current position? (**Probe:** Why?)

PART B - RESEARCH QUESTION 1: HOW DO TEACHERS INTEGRATE IKS IN THE SCHOOL CURRICULUM?

Question B1

Do you attend the teachers' classrooms when they present lessons?



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Question B2

What do you understand about the 'integration of indigenous knowledge systems in the school curriculum'?

Question B3

B3.1 Based on your experience, explain what do teachers under your supervision do when they integrate indigenous knowledge in their teaching?

B3.2 Describe the **challenges** the teachers have when integrating? (**Probe:** Why do you think the teachers have these challenges? How do you handle the challenges?)

Question B4

Explain what you usually **advise** the teachers on with regards the integration of indigenous knowledge in their teaching? (**Probe:** What do you advise them mainly on? Why?)

Question B5

When, during their lesson presentation, do teachers mostly use indigenous knowledge? (**Probe:** Why would they use indigenous knowledge in this phase of the lesson?)

Question B6

How frequent would you say teachers integrate indigenous knowledge during their teaching? (**Probe:** Please motivate your response?).



Question B7

What teaching methods or approaches would **you** suggest to integrate indigenous knowledge in the Intermediate Phase school curriculum? Why?)

Question B8

Are there any particular teaching methods or approaches that **teachers** use when they integrate? (**Probe:** Why do you think they use these particular teaching strategies?)

Question B9

Would you say that **the Learning and Teaching Support Materials like textbooks and workbooks** contain enough indigenous knowledge content to assist teachers when they integrate? (**Probe:** Please motivate your answer?)

PART C: WHAT ARE THE VIEWS OF INTERMEDIATE PHASE SCHOOL TEACHERS ON THE INTEGRATION OF IKS IN THE SCHOOL CURRICULUM?

Question C1

What is **your** understanding of 'indigenous knowledge'?

Question C2

Based on your experience, would you say that teachers are aware that the new curriculum policy statements make room for the integration of indigenous knowledge in the curriculum? (Please motivate your answer.)

Question C3

What attitude would you say is displayed by teachers towards integrating indigenous knowledge in their teaching? (**Probe:** is it positive or negative? Are they enthusiastic or not? Why do they display this particular attitude?)



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Question C4

Are **teachers adequately trained** to integrate indigenous knowledge in their teaching? (**Probe:** Why would you say so? Does the training influence their attitude towards integrating?)

PART D: WHAT ROLE DO SUBJECT ADVISORS AND HoDs PLAY IN SUPPORTING AND MONITORING THE INTEGRATION OF IKS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM?

Question D1

Do you think teachers need **support** to be able to successfully integrate indigenous knowledge in their teaching? (Probe: What kind of support do they need? Do you manage to offer them this support?)

Question D2

How would you **rate the support** you give to teachers with regards integrating indigenous knowledge? (**Probe:** Why? What would you suggest to make your support even better, to improve?)

Question D3

Do **you yourself need any support** with integrating indigenous knowledge? (**Probe:** Why do you need support? Will training be such support?)



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Question D4

D4.1 How do you **monitor** the teachers to see if they do integrate indigenous knowledge in their lessons? (Probe: Do you attend their lessons? Do you call them to the staffroom?)

D4.2 What tools do you use to monitor? (**Probe:** How do you use them? Why? Are the tools helpful?)

D4.3 Do **you have any particular challenges** that you experience when you monitor teachers when they integrate? (**Probe:** Why? How do you handle them?)

Question D5

Based on your experience how can the support for and monitoring of teachers be improved to enable teachers to integrate indigenous knowledge successfully?


PART E: WHAT STRATEGIES CAN BE PUT IN PLACE TO SUPPORT THE INTEGRATION OF IKS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM?

Question E1

What would you like to see done by **national and provincial Departments of Education** to support the integration of indigenous knowledge in the school curriculum? (**Probe:** Why?)

Question E2

What should the District Office do to make sure that the integration of indigenous knowledge in the school curriculum is supported? (**Probe:** Why?)

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Question E3

What should be done at **school and in the classroom** to support the integration of indigenous knowledge in the curriculum? (**Probe:** Why?)

Thank you for your time, effort and contribution to this interview.

Appendix G: Document analysis instrument

DOCUMENT ANALYSIS INSTRUMENT

LESSON PLANS		
INTEGRATION ACTIVITY	COMMENTARY	
Introduction		
Lesson presentation		
Lesson conclusion		
Lesson conclusion		
Teaching methods/strategies		
GENERAL COMMENTARY: <div style="text-align: center;">  <p>University of Fort Hare <i>Together in Excellence</i></p> </div>		
HoD MONITORING AND SUPPORT		
TOOLS	Monitoring activity	Support activity
	HoD-Teacher interaction:	HoD-Teacher interaction:
	Class visits:	Class visits:
GENERAL COMMENTARY:		
SUBJECT ADVISOR MONITORING AND SUPPORT		
TOOLS	Monitoring activity	Support activity
	HoD-Teacher interaction:	HoD-Teacher interaction:

Indigenous knowledge integration in the Intermediate Phase school curriculum

	Class visits:	Class visits:
	School visits:	
GENERAL COMMENTARY:		



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Appendix H: Teacher questionnaire evaluation tool

PRE-TESTING QUESTIONNAIRE FEEDBACK INSTRUMENT

PLEASE COMPLETE THE FOLLOWING FEEDBACK TEMPLATE AFTER COMPLETING THE QUESTIONNAIRE

How long did you take to complete the questionnaire?

Which questions did you not understand? If any, please write the question numbers.

Which questions do you think need improving? If any, please write the question numbers.

Were there any questions you think need rephrasing? If any, please write the questions down?



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Generally how would you rate the questionnaire? Poor/Average/Fair/Good/

Which question/s would you remove? Why?

How would you re-phrase some of the questions?

THANK YOU VERY MUCH FOR YOUR TIME, EFFORT AND CONTRIBUTION.

Appendix I: Letter for District Director

6 Aloe Terrace
Joubert Street
King Williams Town

The District Director
Eastern Cape Department of Education

Dear Sir /Madam

REQUEST: PERMISSION TO CONDUCT RESEARCH IN YOUR DISTRICT

I am registered at the University of Fort Hare for a PhD in Education and I hereby request you grant me permission to come and conduct research activities in your District.

I intend to distribute self-administered questionnaires to sampled teachers; conduct Focus Group Discussions with Heads of Department and to conduct interviews with Subject Advisors.

I have been granted permission by the Education Provincial Head Office.

My research topic is, ***Integration of indigenous knowledge systems in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa.***



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I am due to collect data during the months of February to April 2018. My area of interest is indigenous knowledge (IK) and the curriculum.

The teaching time and/or school activities will be minimally disturbed.

I can be contacted at 082 867 6606/071 55 678 50; fax 086 547 0899; e-mail nkosinathimkosi@gmail.com.

Thanking you.

Yours faithfully

Nkosinathi N. L. Mkosi

Appendix J: Letter for teachers

6 Aloe Terrace
Joubert Street
Clubview
King Williams Town
16 February 2018

The Teacher
District
Circuit Management Centre
Eastern Cape

Dear Sir /Madam

REQUESTING YOU TO COMPLETE A QUESTIONNAIRE

I am registered at the University of Fort Hare for a PhD in Education and I hereby request you to complete a questionnaire. You will be one of 75 randomly selected teachers that will complete the questionnaire.

My research topic is, *Integration of indigenous knowledge systems in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa.*



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The questionnaire will be on issues relating to the integration of indigenous knowledge in your teaching in the Intermediate Phase.

I am due to collect data during the months of February 2018 to April 2018.

You can choose to complete the questionnaire anywhere you wish. This is to ensure that the teaching time and/or school activities are not disturbed.

Five (5) days after delivering the questionnaire, I will collect the questionnaire personally at the school or convenient place that we will mutually agree on.

I can be contacted at 082 867 6606/071 55 678 50; fax 086 547 0899; e-mail nkosinathimkosi@gmail.com or nmkosi@ecleg.gov.za

Thanking you sincerely.

Yours faithfully

Nkosinathi N. L. Mkosi

Appendix K: Letter for Subject Advisors

6 Aloe Terrace
Joubert Street
King Williams Town
16 February 2018

The Subject Advisor
Circuit Management Centre
Eastern Cape

Dear Sir /Madam

REQUEST: PERMISSION TO INTERVIEW YOU

My research topic is, *Integration of indigenous knowledge in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa.*

Mainly, the **purpose of the interview** is to establish the role you play as a Subject Advisor in supporting and monitoring the integration of IK in the Intermediate Phase school curriculum

The new curriculum, CAPS, states that indigenous knowledge (IK) and local knowledges should be included in the curriculum. However, there are perceived and foreseen challenges with the implementation of this policy principle.



I am due to collect data during the months of February-April 2018.

The interview will take between 45 minutes to 60 minutes. You have a choice of as to where you want to be interviewed. This is to ensure that you are comfortable in the space you choose, as well, it is to ensure that your monitoring and supervision activities are minimally disturbed.

I can be contacted at 082 867 6606/071 55 678 50; fax 086 547 0899; e-mail nmkosi@ecleg.gov.za or nkosinathimkosi@gmail.com.

Thanking you.

Yours faithfully

Nkosinathi N. L. Mkosi

Appendix L: Letter for Heads of Department

6 Aloe Terrace
Joubert Street
King Williams Town
16 February 2018

The Head of Department
District
Circuit Management Centre
Eastern Cape

Dear Sir /Madam

REQUEST: PERMISSION TO INTERVIEW YOU

I am registered at the University of Fort Hare for a PhD in Education and I hereby kindly request you to be part of a group of five (5) Heads of Department that I will interview for my study. My research topic is: ***Integration of indigenous knowledge in the Intermediate Phase school curriculum in a selected Education District in the Eastern Cape Province, South Africa.***

The main **purpose of the interview** is to establish the role you play as a subject HoD in supporting and monitoring the integration of IKS in the Intermediate Phase school curriculum



The new curriculum, CAPS, states that indigenous knowledge systems (IKS) and local knowledges should be included in the curriculum. However, there are perceived and foreseen challenges with the implementation of this policy principle.

I am due to collect data during the months of February to April 2018.

The interview will take between 45 minutes to 60 minutes. The group will have a choice as to where they want to be interviewed. This is to ensure that the group is comfortable in the space they choose, as well, it is to ensure that the teaching time and/or school activities are minimally disturbed.

I can be contacted at 082 867 6606/071 55 678 50; fax 086 547 0899; e-mail nkosinathimkosi@gmail.com or nmkosi@ecleg.gov.za

Your participation will be highly valued and appreciated.

Yours faithfully

Nkosinathi N. L. Mkosi

Appendix M: University Ethics Clearance Certificate



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ETHICAL CLEARANCE CERTIFICATE REC-270710-028-RA Level 01

Certificate Reference Number: REM291SMK001

Project title: **Integrating of indigenous knowledge systems in the intermediate phase school curriculum in a selected Circuit Management Centre, Eastern Cape Province: Implications for teaching and learning.**

Nature of Project PhD in Education

Principal Researcher: Nkosinathi Mkosi

Supervisor: Prof S Rembe
Co-supervisor: Dr M.P Mavuso

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

Indigenous knowledge integration in the Intermediate Phase school curriculum

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:

Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principal or practices are revealed or suspected
 - Relevant information has been withheld or misrepresented
 - Regulatory changes of whatsoever nature so require
 - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely



Professor Lindelwa Majova-Songca
Acting Dean of Research

14 November 2017

Appendix N: Supervisor's introductory note to ECDoE Head Office and participating Education District

Faculty of Education
School of Further and Continuing
Education
Stewart Hall, Alice
Phone: Alice: 040602412
| Email: nmayiya@wfh.ac.za



24 January 2018

To whom it may concern

Dear Sir/Madam,

Re: Permission to Collect Data: Mr N. L. N. Mkosi (Student Number 8307940)

This is to confirm that Mr Mkosi is pursuing PhD degree at the University of Fort Hare. His research title is **“Integration of indigenous knowledge systems in the Intermediate Phase school curriculum in a selected Circuit Management Centre in the Eastern Cape Province: Implications for teaching and learning”**. He is supposed to collect data from the district office and schools. Kindly grant him permission. I would also be grateful if you could kindly provide him with documents that may assist with information regarding the area of his study.

I would like to assure you that any information that will be collected will remain confidential and no name of a person will be disclosed. The student will ensure that he does not disrupt ongoing activities during the period he will be collecting data.

Sincerely



Professor S. Rembe
Supervisor
Faculty of Education,
University of Fort Hare

Appendix O: Research approval letter from ECDoE



Province of the
EASTERN CAPE
EDUCATION

STRATEGIC PLANNING POLICY RESEARCH AND SECRETARIAT SERVICES
Steve Vukile Tshwete Complex • Zone 6 • Zwelitsha • Eastern Cape
Private Bag X0032 • Bhisho • 5605 • REPUBLIC OF SOUTH AFRICA
Tel: +27 (0)40 608 4773/4035/4537 • Fax: +27 (0)40 608 4574 • Website: www.ecdoe.gov.za

Enquiries: B Pamla

Email: bbabalwa.pamla@ecdoe.gov.za

Date: 22 March 2018

Mr. N L N Mkosi
6 Aloe Terrace
Joubert Street
King Williams
5600

Dear Mr. Mkosi

PERMISSION TO UNDERTAKE A DOCTORATE THESIS: INTEGRATION OF INDIGENOUS KNOWLEDGE SYSTEMS IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM IN A SELECTED CIRCUIT MANAGEMENT CENTRE, EASTERN CAPE PROVINCE: IMPLICATIONS FOR TEACHING AND LEARNING

1. Thank you for your application to conduct research.
2. Your application to conduct the abovementioned research from primary and combined schools with intermediate phase of ~~primary~~ West District under the jurisdiction of the Eastern Cape Department of Education (ECDoE) is hereby approved based on the following conditions:
 - a. there will be no financial implications for the Department;
 - b. institutions and respondents must not be identifiable in any way from the results of the investigation;
 - c. you present a copy of the written approval letter of the Eastern Cape Department of Education (ECDoE) to the Cluster and District Directors before any research is undertaken at any institutions within that particular district;
 - d. you will make all the arrangements concerning your research;
 - e. the research may not be conducted during official contact time;



Indigenous knowledge integration in the Intermediate Phase school curriculum

- f. should you wish to extend the period of research after approval has been granted, an application to do this must be directed to Chief Director: Strategic Management Monitoring and Evaluation;
 - g. your research will be limited to those institutions for which approval has been granted, should changes be effected written permission must be obtained from the Chief Director: Strategic Management Monitoring and Evaluation;
 - h. you present the Department with a copy of your final paper/report/dissertation/thesis free of charge in hard copy and electronic format. This must be accompanied by a separate synopsis (maximum 2 – 3 typed pages) of the most important findings and recommendations if it does not already contain a synopsis;
 - i. you present the findings to the Research Committee and/or Senior Management of the Department when and/or where necessary;
 - j. you are requested to provide the above to the Chief Director: Strategic Management Monitoring and Evaluation upon completion of your research;
 - k. you comply with all the requirements as completed in the Terms and Conditions to conduct Research in the ECDoE document duly completed by you;
 - l. you comply with your ethical undertaking (commitment form);
 - m. you submit on a six-monthly basis, from the date of permission of the research, concise reports to the Chief Director: Strategic Management Monitoring and Evaluation.
3. The Department reserves a right to withdraw the permission should there not be compliance to the approval letter and contract signed in the Terms and Conditions to conduct Research in the ECDoE.
 4. The Department will publish the completed Research on its website.
 5. The Department wishes you well in your undertaking. You can contact the Director, Ms. NY Kanjana on the numbers indicated in the letterhead or email nelisa.kanjana@ecdoe.gov.za should you need any assistance.



NY KANJANA
DIRECTOR: STRATEGIC PLANNING POLICY RESEARCH & SECRETARIAT SERVICES
FOR SUPERINTENDENT-GENERAL: EDUCATION



Appendix P: Research approval letter from District



DISTRICT – OFFICE OF THE DISTRICT DIRECTOR

REPUBLIC OF
18 April 2018

TO WHOM IT MAY CONCERN

Dear Sir /Madam

This serves to inform you that the bearer of this letter **Mr N.L.N. MKOSI** had been given permission to use our institutions of learning as sites to conduct his research. The title of his Doctoral Thesis is: **"Integration of indigenous knowledge systems in the Intermediate Phase school curriculum in a selected Circuit Management Centre in the Eastern Cape Province: implication for teaching and learning"**.

He is pursuing his PhD thesis at University of Hare. It is hoped that he will favour us with his findings as soon as he had concluded his studies.

Your cooperation regarding the matter will at all times be highly appreciated.

Yours in Education

 : District

building blocks for growth



Appendix Q: Units, categories, themes

Units, categories, themes

HoDs FGD and Subject Advisors Interviews plus infused textual data from teacher survey -coding, unitising, categorising and thematising

Units	Categories	Theme (s)
How do you find your current position?		
<p>very challenging so demanding; they send you documents today and tomorrow they want them back administration tasks are overly emphasised added responsibilities a lot of accountability. Challenging and stressful x4- negative attitude of some teachers, limited resources, more responsibilities Interesting too come across different teachers some who are negative and sort of look down upon you personal or maybe personality challenges that confront you We travel a lot poor facilities, the neglected infrastructure of some schools-underperformance of the teachers responsibilities are challenging. Demanding-a lot of schools, mostly in rural area</p> <p>Very challenging x 6 Very strenuous Too much administration x 2</p>	<p>Challenging and stressful Demanding Strenuous Added responsibilities Additional accountability</p> <p>Interesting-teachers and principals are receptive</p>	<p>Administratively cumbersome and resource constrained</p>
HOW TEACHERS INTEGRATE IK (Subject Advisors and HoDs)		
In your opinion what does 'indigenous knowledge' mean?		
<p>Knowledge of all the heritage of a people, Knowledge passed from generation to generation orally and through concrete artefacts It includes the indigenous language of a people, their values, their customs, their religion How they practice customs and beliefs Not learnt formally and indigenous knowledge systems are not developed through scientific means which is generally known as modern knowledge. Indigenous knowledge systems may have scientific principles but meant for survival Cultural traditional knowledge IK is knowledge that is inherited from our forefathers in opposition to Western White modern knowledge in the textbooks. Learn from the family, the environment or from the community Old knowledge from the old people in the community The indigenous languages, not English, are used to teach the younger ones.</p>	<p>Heritage of a people</p> <p>Orally passed from generation to generation</p> <p>Include indigenous languages</p> <p>Customs and beliefs</p> <p>Not learnt formally</p> <p>Cultural traditional knowledge</p> <p>Have scientific principles</p>	<p>Generally teachers, HoDs and SA have an acceptable conception of IK, with exception of few teachers</p>

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<p>It's not a modern knowledge but old traditional one that has developed over many centuries</p> <p>Teachings of our African sages, culture and traditions Ancient histories and indigenous African languages. Passed on from one generation to another like in storytelling orally The traditions, culture, customs, beliefs, how they did things, Language of one community or nation Information received from home Information is told to learners by elders of society Is linked with culture and traditions Based on what a person sees in his home and experiences in the community Is taught at home and in the community – not at school Known prior the child come to school No need referring or consulting the formal references It's the knowledge that I have Includes the norms, the cultural values and norms and standards of life of community and its indigenous language Don't need to be taught formally about indigenous knowledge Parents, old people, community teach children from generation to generation No need to Google it or go to a big encyclopaedia or dictionary Know it from listening and observing and experiencing</p>	<p>Not modern knowledge</p> <p>Ancient histories</p> <p>Not taught at school - taught by listening, observing, experiencing</p>	
<p>Do you attend the teachers' classrooms when they present lessons?</p>		
<p>Do not attend though I know it's my responsibility Not always- there are too many schools and too many teachers ; too many meetings Just at times. Not frequently though No, - time constraint Very seldom -many schools I visit classrooms by invitation mostly</p>	<p>No Very seldom Only when invited</p>	<p>SAs and HoDs generally do not attend teachers classrooms</p>
<p>What do you understand about the integration of indigenous knowledge systems in the curriculum'?</p>		
<p>Inclusion of knowledge outside Western Knowledge into the curriculum at schools Use of knowledge learnt in communities when teaching Mix Western knowledge found in textbooks and curriculum with local community learnt knowledge Must make room for indigenous knowledge Linking of home language, the community knowledge, the learners knowledge with knowledge in Textbooks IK must be linked to White peoples knowledge Use knowledge from the community to explain concepts Not completely sure Linking indigenous knowledge from home with the content taught in the textbooks at school. Teaching the unknown things in knowledge taught through examples of the known I do not have much knowledge about integration of indigenous knowledge</p>	<p>Including knowledge of culture, tradition, language in lessons</p> <p>Mixing Western and local knowledge explaining textbook material through relating to local knowledge</p> <p>Limited understanding of concept</p>	<p>IK integration in the school curriculum well conceptualised</p> <p>Unsure what IK integration means</p> <p>Mixing local /IK with dominant Western knowledge in the textbook</p> <p>Linking the known prior knowledge of learners to teach</p>


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<p>whereby the teacher can use some knowledge that the learner already has from home, link it with what is to be taught at school in the textbook have your own knowledge based on your nationality or culture which you use in your teaching learners can use their cultural knowledge when they answer or learn about something foreign to them I am not so well-versed with the integration of indigenous knowledge IK integration enable teachers to teach from simple to complex Opportunity to learn other cultures for learners</p> <p>Treating all knowledge's equally within curriculum Link home and cultural knowledge with what is taught in class x2 Link cultural, traditional, or heritage knowledge of learners and teachers x3 Mix dominant knowledge in textbook with underrepresented knowledge</p>	<p>Help make complex concepts easy</p> <p>Western textbook knowledge dominates indigenous knowledge</p> <p>Need to equal treatment of different streams of knowledge</p>	<p>the unknown in the school textbook content</p>
<p>Based on your experience, explain what do teachers under your supervision do when they integrate indigenous knowledge in their teaching?</p>		
<p>I have no chance to visit all the many schools I never thought of this topic of integration- my understanding is limited Was never exposed to it myself Never thought it is possible to integrate IK Now I think teachers can use their knowledge on culture, history and traditions when explaining certain topics; tell stories of the past Teachers integrate more unconsciously, including myself I have never talked about this with teachers- we were not trained Using subject matter from other subjects is integrating Now as I reflect, teacher need to integrate IK to make lessons more understandable Teachers need to use story telling from old people at home Have phase meetings and advise each other and share lessons I've never visited a class I never thought about this I never was exposed to this integration; department never emphasise it They do it a little bit because some themes and topics do have examples of indigenous knowledge especially in Creative Arts Integration may be another additional responsibility Now that I think about it there is some integration opportunities that may be happening in Life Skills and Physical Education and a study area called Creative Arts where indigenous games are taught Never observed the teachers Don't know if my teachers do know about integration themselves</p>	<p>Not sure, as no visit takes place</p> <p>Can only reflect and imagine what do teachers do</p> <p>Teachers not equipped to integrate IK</p> <p>Teachers maybe integrating unknowingly to myself and themselves Done through excursions</p>	<p>Subject advisors are unaware how the teachers integrate as most do not visit classes</p> <p>IK integration is happening mainly through excursions, sports, themes, and projects</p> <p>Teachers unsure about integration and do not have lesson plans or lesson preparations for IK integration</p>

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<p>Never talked about integration of this knowledge In geometry, if they are dealing with circle, for example they can link that because most things are there in their homes like the rondavels They don't do much Don't even really understand even how to impart knowledge using the indigenous knowledge They take it carelessly Do not plan for it Do not prepare Does not carry weight in their teaching or in the curriculum generally Indigenous knowledge policy is not implemented as they also do not have the necessary knowledge as to what and how to implement it</p> <p>Not done properly Not sure if it happens Done through homework, assignments, use themes, projects Share ideas Find it difficult to integrate- limited training Teachers do but not 100% Yes, done through excursions x4</p>		
Describe the challenges the teachers have when integrating indigenous knowledge.		
<p>Resource scarcity (Relevant resources) No or limited IK in textbooks (this is because colonialism made history to be lost and IK to be frowned upon by us) Teachers attitude- it appears as extra work More admin work for the teachers Not trained, as am also not trained Lack guidance as am not trained to guide them in that Learners who are exposed more to modern day things like TVs, celebrities There have been calls by university students to decolonise education system- this is a call to integrate IK Time constraint, infrastructure Big classes and multi-grade teaching Vast curriculum Syllabus coverage Other commitments like attending Union meetings, funerals, etc CAPS documents not clear on how (teaching methods; assessment of IK) and what (content) of integration Difficult to assess IK when mixed/ integrated with Western knowledge IK is limited in textbook due to SA history of Apartheid and colonialism Lot of subjects to teach and many learners Time, planning and resources We are also not formally trained in integration of indigenous knowledge Learners don't appear to like the traditional stuff Teachers and parents want their children taught in English</p>	<p>Only can predict/ assume challenges Limited resources- time, textbook, infrastructure Administrative burden Limited/ lack of training Overload-Big classes and multi-grades Attitude e.g. not liking the concept; perceived conflict with religion (Christianity) Despite negativity, space/room for IK in the curriculum</p>	<p>A plethora of challenges impede proper integration and prospects for integration</p> <p>Training very limited to non-existent</p> <p>Inadequate to lack of IK resources and materials</p> <p>Time constraints to focus on IK-covering of syllabus more important</p> <p>Conflict of Christian values versus IK values leading to negative attitude</p>

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<p>Lack of training on integration Resources Morale is not okay Lot of children to mark and to teach Multi-grade classes Infrastructure is not good Paper work Content of indigenous knowledge is not enough Some teachers and parents don't like the old traditional knowledge Myself as a Christian I do not support the other things done under IK Because of politics of the past. We did not learn about our culture and history Knowledge of Blacks was not included because the Apartheid Boers Do not how to prepare their lessons for it They don't plan thoroughly Not being trained in the integration Negative attitude</p> <p>Even though not properly trained, there is room for IK There is room for IK IK has a space in the curriculum Can be taught alongside "White" modern textbook knowledge in integrative way Should enjoy same prominence IK has benefits for the curriculum</p> <p>As HoD believe inadequate knowledge about IK</p> <p>No training Too much content- time constraint Teacher resistance Negative teacher attitude Non-involvement of community x 3 Christian values perceived to conflict Limited resources Too much admin work</p>	 <p>University of Fort Hare Together in Excellence</p>	<p>Limited IK textbook content and IK resources as a result of colonialism and Apartheid</p> <p>Space for IK in curriculum even though not properly integrated</p> <p>Too much administration work.</p>
<p>How do you usually advise teachers on integration?</p>		
<p>Best to know that IK cannot fit in all subjects Brainstorm with others and share best practices on when best to integrate Make use of community to learn more about IK Not advising currently but could advise them on the advantages and give examples on how to integrate Not advising currently but I can say that teachers need to link what learners know from home and what is in textbook. Given them home work and have them helped by parents/ guardians; even bring some grandparents to come give a talk Can advise: use the training on integration they were taught in formal training use the normal teaching methods like storytelling and discussion and question and answer methods use it when they start their lesson during the introduction and when they explain during the lesson itself</p>	<p>No advising taking place</p> <p>To apply IK at beginning of lesson as well as when giving examples</p> <p>Team work/not work in isolation per subject/Brainstorm and plan carefully together</p> <p>Integrating IK is subject dependent</p>	<p>Currently not much advising is taking place as SA and HoDs are not trained or have not been understanding the importance of IK</p> <p>Teachers to work as team and not in isolation according to subject specialisation</p> <p>More indigenous language teachers</p>

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<p>mix what the textbook is saying and link it with the knowledge the learners have from home during the assessment phase it should be there Whether it is formal and informal to brainstorm together with phase/ subject teacher plan for lessons teaching methods like discussion, telling method, problem solving methods, group or pair work look at the environment first, their community for resources as there are many there ask their parents and other old people for examples of resources learners will be able to remember knowledge and resources very easy</p> <p>working together as team- phase/ grade meetings not work in isolation not focus on specialisation, on taught subject use other subject content some teachers focus on their subject-had to work together reading wide including on internet seek help beyond school valuing indigenous language, indigenous language teachers must be employed excursions should not be subject specific</p>	<p>Reading wide</p> <p>Indigenous languages is key in integration IK</p>	<p>need to be employed as indigenous languages are important</p>
<p>What stage do teachers have to integrate</p> <p>can be used anywhere during lesson presentation depending on the topic and lesson objectives usually do it in an introduction part, like when they are making examples during introduction a bit during presentation stage when they demonstrate what is being done in the communities when assessing- currently they do not ask them about indigenous matters</p> <p>introduction section body of lesson never visited class so not aware X3</p>	<p>Any part and throughout a lesson</p> <p>Throughout including in assessment</p>	<p>IK need to be integrated throughout from lesson introduction to assessment</p>
<p>Frequency of use of IK by teachers during lesson</p> <p>Mostly likely very rarely, though I do not have chance to actually monitor them I've never asked them or checked whether they do integration. Maybe they do it with textbook topics and themes that talk about Black people Maybe integrating without knowing maybe once a week or at the beginning of a theme for the quarter They don't apply indigenous knowledge every time. They integrate infrequently, that's how I see it.</p> <p>Not sure Occasionally</p>	<p>Not very sure as no monitoring is taking pace</p> <p>Most likely rarely</p>	<p>IK integration is more erratic and unknown as teachers are unsure</p>

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<p>Relative to subject- science and technology subjects have more integration</p>		
<p>What teaching methods would you suggest to integrate indigenous knowledge in the Intermediate Phase school curriculum?</p>		
<p>Debates on topics related to IK essay topics classroom discussion story telling group work discussions task based teaching question and answer approach Discussion, group work, storytelling, question and answer methods, play methods for the Creative Arts especially question and answer method - "How do you this thing at home?" stories take home assignments group work I do not have a lot of knowledge on teaching methods and approaches. I need help also to know. I also know of the problem solving strategies question and answer method, pairing strategy, group tasks and discussions</p> <p>story telling question and answer assignments, projects discussions</p>	<p>Diverse techniques Question and answer Story telling Discussions</p>	<p>Diverse teaching methods have been identified, no one unique but question and answer is popular</p>
<p>VIEWS OF INTERMEDIATE PHASE SCHOOL TEACHERS ON INTEGRATION OF IKS IN SCHOOL CURRICULUM</p>		
<p>What is your understanding of 'indigenous knowledge'? (Subject Advisors and HoDs)</p>		
<p>Knowledge based on the teachings of our African cultures and traditions, history and language, knowledge passed on from one generation to the other- traditions, culture, customs, beliefs, language Stories from our grandmothers the information that is received from home that can be taught and linked with the content at school The information is also told to learners by elders of society. that knowledge that is linked with culture and traditions knowledge that is based on what a person sees in his home and experiences in the community not the knowledge that is taught at school knowledge that is taught at home and in the community knowledge that is known prior the child come to school There is a dire need for more resources with indigenous knowledge content. Like in Life Orientation or Life Skills or Creative Arts Indigenous knowledge can be taught together with the knowledge content in the textbooks more space can also be created for indigenous knowledge in the textbooks it's a knowledge that I have without referring or consulting the formal references</p>	<p>Cultures Traditions History language Stories by communities Prior knowledge and values Informal knowledge</p>	<p>Concept indigenous knowledge relatively well conceptualised with exception of few teachers</p>

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<p>includes the norms, the cultural values and norms and standards of life of community and its indigenous language You don't need to be taught formally about indigenous knowledge. The parents and old people in home or the community teach the children and that happens from generation to generation know it from listening and observing and experiencing.</p>		
<p>Based on your experience, would you say that teachers are aware that the new curriculum policy statements make room for the integration of indigenous knowledge in the curriculum?</p>		
<p>This aspect is not known much even though its clear in CAPS documents There has not been any training formal training some theory of curriculum integration general known curriculum integration or subject integration from college training but not integration of indigenous knowledge.</p> <p>Not really sure, given my limited exposure and they never had training don't think so as they would have at least talked about it our fault as we must make them aware of what stands in the CAPS documents were never formally trained in Life Skills and Physical Education where integration is expected to be done No. I don't think so as I've never trained them on this and myself I was not aware. Really I was never trained in the integration Yes I think so but they don't implement It is not taken seriously Even they were trained generally in CAPS; they were not trained in integration of indigenous knowledge</p> <p>Yes but no integration Reasonably aware Yes through staff and phase meetings x3 More for natural sciences</p>	<p>Not sure as no monitoring Are aware but do not implement No- never trained Received formal training on general theory of curriculum integration; not IK integration</p>	<p>SA and HoDs not aware as they do not fully monitor the integration</p> <p>Exposure on general theory on curriculum integration but not on IK integration per se</p>
<p>What attitude would you say is displayed by teachers towards integrating indigenous knowledge?</p>		
<p>Seemingly I don't know- informed by lack of knowledge Negative due to large class size, more admin work and multi-grading Not sure, but both positive(the benefits are there and are good) and negative (more work) Holistic-learning-teaching approach learning beyond and from more than just textbooks Positive. It is only that they lack knowledge on integration negative because of lot of work and teacher portfolios and subject portfolios Negative: will not know what to do when they integrate Negative: Assessment may frustrate them can't say, maybe negative and maybe positive</p>	<p>Mainly negative – would be added burden Challenges – class-size, don't know integration Assessment challenge Importance/benefits of IK:</p>	<p>Negative attitude to indeterminate due to challenges:</p> <p>Large class size, admin work, multi-grade classes</p> <p>Time constraints, time consuming</p> <p>Not knowing how to integrate IK</p>

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<p>teachers will not like to be trained on something they think will bring extra responsibilities have a lot to do teach and the subject portfolios for each subject they Positive in that maybe they will see that they can use it in their lessons to make their explaining better IK integration will have many benefits they are negative, saying it's a lot of work to be done, time consuming lot of classes and paper work admin work, like teacher portfolios textbooks is more than enough to prepare the learners for their future at tertiary institutions and also in the job market</p> <p>mainly negative not enthusiastic young teachers are more positive and eager to learn</p>	<ul style="list-style-type: none"> ▪ learn about others' values; ▪ facilitates principle of known to unknown; ▪ better explaining; ▪ better understanding by learners; ▪ preserve knowledge and cultural indigenous knowledge; ▪ learn good values; ▪ develop new teaching approaches/ methods <p>Extra responsibility</p> <p>not sure as I have not brought it up in advisory sessions</p> <p>not good for future and job market</p> <p>time consuming</p> <p>positive mainly among younger ones</p>	<p>Challenges with regards assessment of IK</p> <p>Importance/benefits of IK for teaching and learning</p> <p>IK not good for modern times, future and job market</p>
<p>Do you (Subject Advisors and HoDs) have anything further thing to say on the adequacy of training of teachers?</p>		
<p>There is limited or no training Teachers maybe integrating unknowingly since IKS is not well known In-service training need CAPS to be explicit on the matter including the material Teachers may have been trained, I don't know- even myself maybe I was trained unknowingly Training still needed, including for myself Capacitation on identifying true and legitimate IK from the community never trained or workshopped on this- they got trained to teach textbook content No. They do not have any training that I know</p>	<p>Training is needed</p> <p>Training to be linked to CAPS material</p>	<p>Training for the HoD, SA, teachers and principals needed</p>



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<p>taught themselves in private courses especially the Mathematics teachers No. They were trained in other things but not enough on integration still gaps in their methodology and the curriculum policy on integration</p> <p>it is inadequate principals and subject advisors to be trained too</p>		
<p>ROLE OF SUBJECT ADVISORS AND HoDs IN SUPPORTING AND MONITORING INTEGRATION OF IKS</p>		
<p>Do you think teachers need support to be able to successfully integrate indigenous knowledge in their teaching?</p>		
<p>Yes they need support Training and workshops Mentoring –though it is not possible form advisors as they have more responsibility covering many schools Yes- resource; workshops/ training Reduce number of subjects yes they definitely need a lot of support and us trained on the approach on how teach this integration workshops, lesson guides on integration, lessons about the content must be trained for a year or two big yes should get training on IKS in addressing the new curriculum or to drive the new curriculum resources, reduce their workloads and more teachers employed because they teach a lot of subjects Principals, HoDs, everyone who supervise the teachers should support and guide them Universities can have part time courses on this integration. Yes they need support Monitoring the work Training giving them advice and guidance and demonstrating integration We supply them only with a general template to manage the curriculum themselves and it not for integration Yes, more on teaching approaches- x 3 SA They really do need it</p> <p>Need support on teaching approaches or strategies on how to integrate Workshops plus workshops on assessment strategies Cooperative work strategies for teaching integration Need class visitations Teachers not much experience in integrating they are used to a subject approach, one person for herself or himself Teachers need training full stop They need seminars; well planned workshops on integration and indigenous knowledge.</p>	<p>Yes- supported needed</p> <p>Resources</p> <p>Training</p> <p>Involvement of every stakeholder – Subject Advisors, HoDs, principals, community</p> <p>Different kinds of support needed</p> <p>Workshops</p> <p>Seminars</p> <p>Mentoring</p>	<p>Inadequate support for teachers</p> <p>Support needed from Subject Advisors, HoDs, Education District community, universities, traditional leadership, unions</p> <p>Teachers need various kinds of support with integration of IK in the curriculum</p> <p>Workshops needed in absence of formal training</p> <p>Seminars needed</p>

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<p>They need advise on the content We [HoDs] also need training to be able to give proper support. somedody from community to give us a little bit of advice. Another thing that works is mentoring. avoid the silo mentality, teaching in isolation. Peer mentoring and sharing of skills is what the teachers need. Need team teaching teachers need support and assistance with the planning and preparation of lessons, tasks, assessment, projects, activities that involve indigenous knowledge they need to be assisted with their attitude to indigenous knowledge</p>		
<p>Rate your support and what you would do to improve your support</p>		
<p>Poor- non existent- I need to be equipped 40%. Because I have many grades Very poor. It is not there lack of meetings between Subject Advisors and teachers lack of training on integration on my side continuous advise on integration needed and not making time for integration feedbacks and workshops scarcity of vehicles to visit schools rarely done - poor</p> <p>as HoDs don't do it frequently for integration of indigenous knowledge It's very rare supporting a teacher for integration of indigenous knowledge activities support inadequate</p>	<p>Poor to non-existent support Very low</p>	<p>Low rating meaning poor support as SA and HoDs are not trained and/or are inadequately equipped with tools of trade</p>
<p>Do you need training or support?</p>		
<p>Yes Yes I need training. This will make me confident I did a bit of informal training in Creative Arts and Physical Education once a year of which I think it needs to be done continuously Yes. Training will be very useful. If I have been trained, I can be able to cascade this information to the teachers I can make a follow up thereafter in the form of support during training of National Curriculum Statement or Revised National Curriculum Statement, we were not trained on integration It can be there in the CAPS document but we were not trained. Yes, I need to know what and how to support a teacher or HoDs at schools I supervise</p>	<p>Training need Training given inadequate</p>	<p>Training is needed by all, Subject Advisors, HoDs, teachers in integration of IK</p> <p>Training from Education Department is poor to inadequate</p>

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<p>As HoDs Yes- upskilling The Department must support and assist us. Department workshops not realistic and adequate Workshops theoretical Subject Advisors must visit our classrooms not focus on administrative work I reckon they [Subject Advisors] need training themselves to advise us properly</p>		
<p>How do you monitor the teachers to see if they do integrate indigenous knowledge in their lessons? If you do not support, do you monitor at all?</p>		
<p>I do not since it never crossed my mind No Onsite monitoring tool for syllabus coverage and moderation; Check their lesson plans and we discuss the problems No. I don't have any tools that accommodate integration of indigenous knowledge I do not monitor them whether they do integration or not. class visits which are very poor check their annual teaching plans, their portfolios whether they have the CAPS document HoDs far-in-between class visits check books not for integration inspect test and exam papers not necessary for integration monitoring generally not happening, monitor syllabus coverage and moderation standardised tool needed</p>	<p>No monitoring for integration Onsite monitoring tool not for IK integration Poor class visits Check and evaluate teaching plans and material not for integration per se Monitor evaluation of assessments not for integration</p>	<p>Little to no monitoring of integration of IK by Subject Advisors and HoDs takes place</p>
<p>Tools that you use for monitoring integration as you don't monitor it?</p>		
<p>No tool Monitoring tool, but not sufficient until some elements are put in the tool to monitor integration and assessment specifically I don't know of any Subject Advisor that has such a tool Yes, standardised tool needed</p>	<p>Not monitoring tool</p>	<p>No monitoring tool used that caters for IK integration and most SA and HoDs do not monitor</p>
<p>What challenges that you experience when you monitor integration</p>		
<p>What to monitor and how to monitor as I don't have background and training No challenges as no monitoring takes place resources especially for my Creative Arts and Physical Education Little bit of training is a challenge too teachers are not helpful and have an attitude on the indigenous knowledge No sure about challenges. I will know when I'm trained huge number of schools too much paper work- administrative tasks poor training</p>	<p>Poor to no monitoring taking place What to monitor not known How to monitor integration not known Lack of training Negative attitude</p>	<p>The little monitoring taking place is impeded by admin tasks, lack of training, focus on syllabus coverage, teacher negative attitude</p>



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	Administratively cumbersome Administration overload	
Based on your experience how can the support for and monitoring of teachers be improved to enable teachers to integrate indigenous knowledge successfully?		
<p>No experience so far Train all relevant stakeholders like HOD, circuit managers, principals, SGBs, for holistic action More human resources must be employed instead of having one Subject Advisor Training of all Subject Advisors, Principals, School Management Team, HoDs, all, including the School Governing Body One way which is to train everybody involved with the supervision of teachers the Subject Advisors, Principals, HoDs, Circuit Managers We should be trained the ratio of Subject Advisors to schools should be looked at, and lack of resources not much monitoring taking place</p> <p>HoDs need Less admin work, paper work from the Department. More teaching time to cover the content. maybe there should be an incentive to boost morale and change attitudes Teachers trained to approach things not in an individual subject approach but in an integrative approach our learner teacher ratio should be reduced Training. Seminars. Workshops. Universities roped in to assist Teachers assisted by experts form community and other stakeholders like traditional leadership</p>	<p>No appropriate monitoring for integration currently</p> <p>Train all stakeholders</p> <p>Train SAs, HoDs</p> <p>More SAs needed Provide resources</p> <p>Reduce class sizes</p> <p>Employ more SAs</p>	<p>Training, resources, reduction of syllabus to be covered, and reduction of admin work needed</p> <p>Parents, community, outside experts, stakeholders involvement needed</p>
WHAT STRATEGIES CAN BE PUT IN PLACE TO SUPPORT THE INTEGRATION OF IKS IN THE CURRICULUM		
What would you like to see done by the national and provincial Departments of Education to support the integration of indigenous knowledge in the school curriculum?		
<p>training opportunities relevant materials and resources clear policy guideline (CAPS is not clear) training and resources clear policy for integration Involve all stakeholders advocacy campaigns and train all stakeholders clarity of policy Policy on content to teach and how to teach training resources to the Districts funds available to employ more teachers and for workshops some guidelines as to how to do it and also common tool of monitoring invite all stakeholders to make input in the curriculum policy for integration</p>	<p>Training Policy guidelines clarity Advocacy campaigns Resource schools Engage and involve all stakeholders</p>	<p>Clear policy guidelines on IK integration from Education Department</p>

Indigenous knowledge integration in the Intermediate Phase school curriculum

<p>advocacy encouraging cooperation among stakeholders provide resources training; Imbizos and workshops</p>		
<p>What should the District Office do to make sure that the integration of indigenous knowledge in the school curriculum is supported?</p>		
<p>Special tool designed to monitor Workshops and training for circuit managers , subject advisors, principals, HoD and teachers Resources Plain training workshops Uniform monitoring tool Advocacy campaigns Influence the Provincial and National Department to employ more human resources Train and support the Subject Advisors and other officials with resources Proper tools for support Involve the community so that it supports indigenous knowledge integration Work closely with school to motivate and support and provide monitoring Universities must be approached to teach the new and prospective teachers Employ more Subject Advisors and teachers Work with universities and ask them to train the prospective teachers Advocacy campaigns in the community for stakeholders Resources provided for schools Organise training, seminars, workshops Work closely with school community stakeholders Advocacy campaigns</p> <p>Training Upskilling Have district inspectors as before More and better infrastructure Standardised monitoring tools Revise curriculum statement on IK</p>	<p>Design of standard monitoring tool Training Advocacy campaigns Lobby for more SAs Engage communities</p>	<p>Standardising monitoring and support tool, lobby for more resources and upskilling strategy</p> <p>Training teachers, SA, HoDs, SGB and other officials</p> <p>Involve education stakeholders like community, traditional leaders, to support integration</p> <p>Universities must play role in training of teachers on integration</p>
<p>What should be done at school and in the classroom to support the integration of indigenous knowledge in the curriculum?</p>		
<p>School must support efforts of district Meetings on progress Allow phase teachers to share experiences Principals and SMT must monitor too Phase teachers group and teach as team across subjects Learners to be informed to link what they do at home and what they learn at school Advocacy campaigns Principal and HOD must be trained Involve SGBs</p>	<p>Principals and SMT trained Involve SGBs Resource mobilisation Inter-subject teaching</p>	<p>Support district and province efforts and involve SGBs and wider community</p> <p>De-emphasise individualistic subject specialisation approach</p>

Indigenous knowledge integration in the Intermediate Phase school curriculum

<p>Inter-subject teaching Phase meetings and learning area meetings to share success stories and brainstorm Involve community more Assist teachers to get resources, teaching materials Allow for subject meetings to discuss integration and sharing of knowledge across the subjects Community must be involved Phase meetings Subject or learning area training must be conducted Assist teachers to have appropriate teaching materials Community can be involved to donate examples of indigenous objects and invite elders to talk about indigenous knowledge Indigenous stuff can be put on display in the classrooms Make sure that the roles for the SGBs especially the parent component is actively involved Learners must be involved Learners can learn to refrain from bad behaviour through indigenous knowledge Indigenous games like ugqaphu</p> <p>Organise cultural days Phase and grade meetings Ensure no individualistic approach, subject focus only to be discouraged - cultivate team work spirit Formally approach community Allow teachers time to attend workshops and training</p>	<p>Support district efforts</p> <p>Advocacy campaigns</p> <p>Engage the community formally</p> <p>Team work by teachers</p> <p>Cultural day</p>	
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Appendix R: Editing Certificate

COPY-WRITING

Specialist Consultants

Date: 12/01/2019

Client: Nkosinathi Mkosi

I, **David Barraclough** - an academic editor of more than 20 years' standing - did a *substantive language edit* of a PhD thesis by Nkosinathi Mkosi:

INTEGRATION OF INDIGENOUS KNOWLEDGE IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM IN A SELECTED EDUCATION DISTRICT IN THE EASTERN CAPE PROVINCE, SOUTH AFRICA

My amendments related mainly to grammatical and other linguistic aspects. This was in order to improve the clarity/readability of the document, but other changes were also made. Comments and queries were made in Word track changes (a total of 282), to help the author to improve the document further (it was his responsibility to resolve all the issues raised in track changes).

The responsibility for the actual academic content lies with the author and not the editor.

Yours Sincerely,

Dr D.A. Barraclough

Full Member: South African Professional Editors' Guild (PEG)

Member: South African Translators' Institute (SATI)



12A Alfred St, Observatory 7925; [cell 082-0766862](tel:082-0766862); [fax 086-2186461](tel:086-2186461); david.barraclough@copy-writing.co.za
www.copy-writing.co.za